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The TIMBER RESOURCES of NEW YORK

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NORTHEASTERN FOREST EXPERIMENT STATION, UPPER DARBY, PA.
FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE
RICHARD D. LANE, DIRECTOR

PREFACE

UNDER THE AUTHORITY of the McSweeney-McNary Forest Research Act of May 22, 1928, and subsequent amendments, the Forest Service, U.S. Department of Agriculture, conducts a series of continuing forest surveys of all states to provide up-to-date information about the forest resources of the Nation.

The first forest survey of New York was made in 1948-50 by the Northeastern Forest Experiment Station, with cooperation from the New York Department of Conservation.

A resurvey of timber resources of New York was made in 1966-68, again with the cooperation of the Department of Conservation. The Department purchased the aerial photographs that were used for the resurvey, provided funds for additional field plots for obtaining more precise data, and gathered information on the output of timber products.

This resurvey of the State was directed by Carl E. Mayer, leader of the forest-survey project. He was assisted by John H. Zerbe, field supervisor, who was in charge of many field crews over the 3-year period. Joseph E. Barnard had charge of translating photo-plot and field-plot data into computer inputs, implementing the generalized computer program to process the inputs, and obtaining computer outputs for the statistics used in this report. James T. Bones, David R. Dickson, and Neal P. Kingsley collected and compiled data on timber removals with the assistance of Tom D. Shearer of the State of New York Conservation Department. Teresa M. Bowers assisted in the sampling design, in checking statistical data, and in making tables from the computer output.

COVER PHOTO: Cranberry Lake in the northern Adirondack region. *New York Conservation Dep. photo.*

The TIMBER RESOURCES of NEW YORK

by Roland H. Ferguson and Carl E. Mayer

The Authors

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New York Conservation Dep. photo.

The southern Catskill region.

Contents

THE RESURVEY 1
HIGHLIGHTS 3
TIMBER-RESOURCE TRENDS 5
- Timber volume increased 5
- Forest area increased 14
- The picture of change 21

TIMBER PRODUCTS TRENDS 27
- Employment in the timber-related industries 28
- Output of the primary manufacturing industries .. 31
- Values added by industries 39
- Demand versus supply 44

THE FUTURE TIMBER SUPPLY 46
- Timber supply outlook 46
- Management opportunities 48

LITERATURE CITED 57
APPENDIX 59
- Definition of terms 59
- Forest-survey methods 70
- Reliability of the estimates 73
- Species tallied 74
- Statistical data 75
- Forest-type map 193

The Resurvey

THE RESURVEY of the timber resources in New York State was made in 1966-68, about 18 years after the first forest survey of New York. In those 18 years, many changes have taken place.

This report was prepared to summarize the present timber-resource situation and the many changes that have taken place, to show the trends in the timber supply, and to show how the timber is being used by the timber-based industries.

New York State was divided into eight geographic units for the resurvey, each unit as homogeneous as possible in the selected combination of counties (fig. 1). At the time of the initial survey, data were collected, compiled, and published (*9*) for each of the 15 forest districts in the State. For comparison, the geographic units used in the resurvey were combined into three major regions, almost identical to those described in the first timber-resource report (*1*):

- Northern Region—St. Lawrence - Northern Adirondack, Western Adirondack, and Eastern Adirondack units.
- Southwestern Region—Lake Plain, Southwest Highlands, and South-Central Highlands units.
- Southeastern Region—Capitol District and Catskill - Lower Hudson units.

Two counties, Rockland and Nassau, that were included in the original survey are now mostly urban, so they were excluded from the resurvey. The 1950 data for these two counties are excluded from the recomputed 1950 estimates used in this report.[1]

[1] The percentage of change (including Rockland and Nassau County data and published 1950 estimates) shown in the report by Barnard and Bowers (*2*) is different from that in this report.

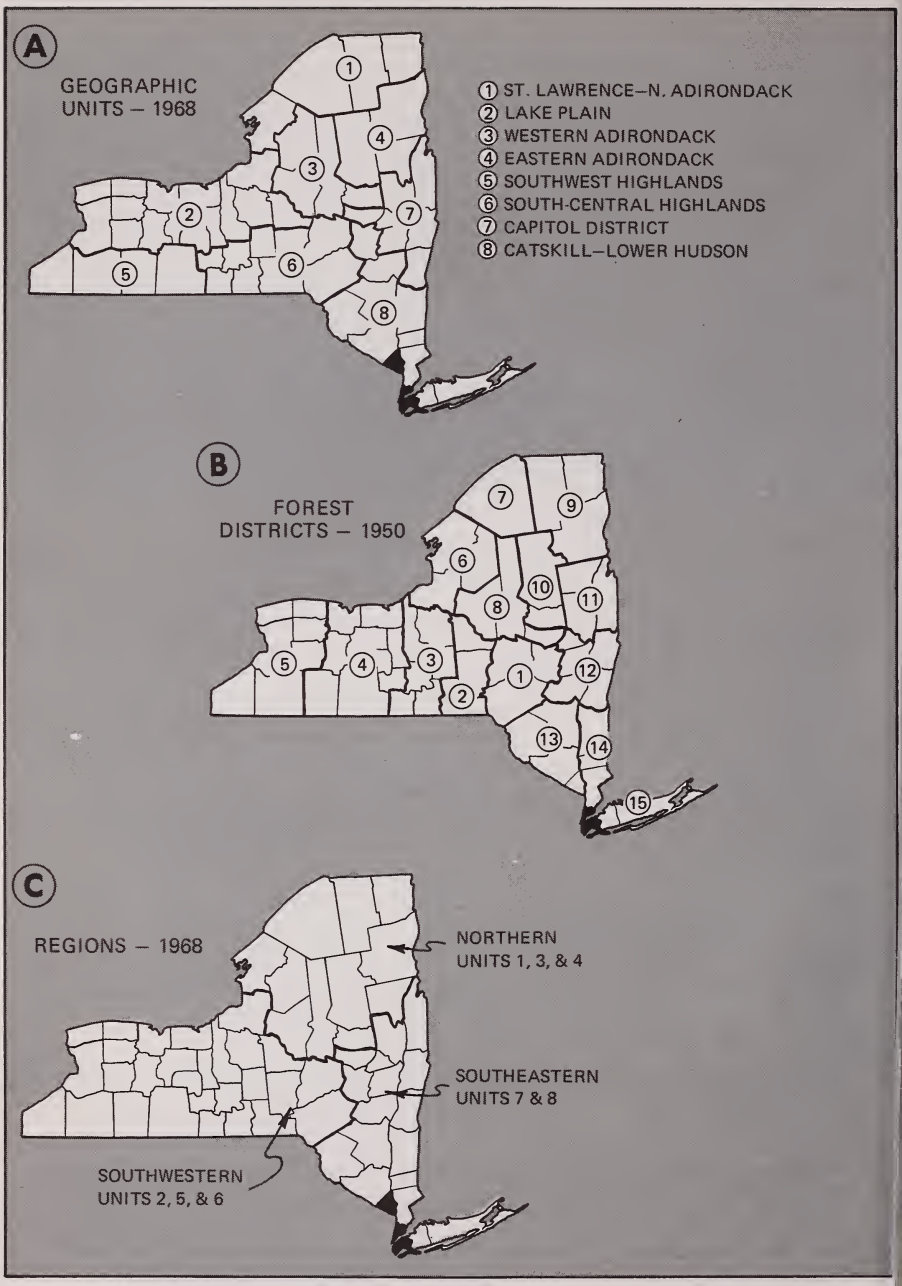


Figure 1.—Sampling units of the two forest surveys: A, geographic units for the resurvey; B, forest districts for the initial survey; and C, regional grouping of geographic units.

In the resurvey, a large number of initial field plots were remeasured to update the initial inventory volume and to provide estimates of average net annual growth, average annual timber removals, and land-use change. New ground plots were established for an independent second estimate. These two sets of estimates were weighted and combined to give the current estimates of forest area and timber volume.

Sampling errors, which indicate reliability, are shown for most of the totals. Users of these resource data are cautioned to read with care the definitions of terms and the section about reliability of the estimates, in the appendix.

Highlights

IN THE 18 YEARS between the first forest survey and the resurvey, many significant changes have taken place. The resurvey revealed that:

- COMMERCIAL FOREST LAND now totals 14,281,000 acres, an increase of almost 14 percent in 18 years.
- GROWING-STOCK VOLUME (trees 5.0 inches d.b.h. and larger) amounts to 12,200 million cubic feet, an increase of 20 percent.
- SAWTIMBER VOLUME amounts to 24,408 million board feet, an increase of almost 11 percent.
- NET ANNUAL GROWTH for 1967 was 282 million cubic feet of growing stock, including 656 million board feet of sawtimber.

TIMBER REMOVALS in 1967 was 137 million cubic feet of growing stock, including 463 million board feet of sawtimber.

SAWTIMBER STANDS make up 30 percent of the commercial forest-land area and average 3,900 board feet per acre.

POLETIMBER TREES comprise one-half of the growing-stock volume, 6.1 out of 12.2 billion cubic feet.

SAWTIMBER TREES that are less than 15.0 inches d.b.h. account for 56 percent of the total board-foot volume.

SOFTWOOD SPECIES make up about one-fourth of the growing-stock volume —3.2 billion cubic feet.

SUGAR MAPLE makes up one-sixth of the total volume, 2.0 billion cubic feet, including 3.9 billion board feet.

SOFT MAPLES had the greatest increase in volume—430 million cubic feet—and their present volume of 1.6 billion cubic feet ranks second only to sugar maple.

Timber-Resource Trends

NEW YORK, THE EMPIRE STATE, is well known to many people for many reasons—tall buildings on Manhattan, dense concentrations of hurrying people, the Thruway from Buffalo to Albany to the Big City, the New York Times, and the New York Yankees. Not so widely known is the significance of the State's timber resource. Although the consumption of timber and wood products per capita is much greater than the quantity that is being produced within the State, the forests in New York are increasing in both area and in timber volume. In the future they may supply a larger portion of the daily demand for timber and products made from wood.

Forest acreages and timber volumes reported for 1950 (*10*) increased significantly, the resurvey showed. Commercial forest-land area[2] increased almost 14 percent. Cubic-foot volume of growing-stock trees increased 20 percent.

TIMBER VOLUME INCREASED

Live tree volume, including sound-wood volume in rough and rotten trees, totaled 14.8 billion cubic feet in 1968, up from 12.0 billion in 1950. The volume in rough and rotten trees increased at double the rate for growing-stock trees—up almost 40 percent as compared to the 20-percent increase for growing stock. Some of this increase is due to a lower proportion of growing-stock volume in the total live-tree volume, and to leaving residual stands of rough and rotten trees. Sound-wood volume of rough and rotten trees in 1950 made up 15 percent of the volume for all live trees, and in 1968 this proportion increased to 17 percent.

The present volume of growing stock now exceeds 12 billion cubic feet, an increase of about 2 billion cubic feet over the 1950 estimate of 10.2 billion cubic feet. This increase was due principally to the large difference between the volume of growth and the volume of removals, and to some extent to the ingrowth

[2] See appendix for definitions of this and other terms used in this report.

of forest trees on land that became forest land during the period between surveys.

The growing-stock volume changes between surveys were not uniform throughout the State. The Catskill - Lower Hudson geographic unit had the greatest increase in volume—45 percent; six other units had increases that ranged from 12 to 36 percent. Only the Eastern Adirondack unit had a decrease in volume, as shown in the following tabulation:

Geographic unit	*1950 (million cubic feet)*	*1968 (million cubic feet)*	*Change (percent)*
Lake Plain	1,087	1,460	+34
Southwest Highlands	1,091	1,365	+25
South–Central Highlands	1,684	1,991	+18
St. Lawrence–N. Adirondack	1,283	1,744	+36
Western Adirondack	1,078	1,216	+13
Eastern Adirondack	1,615	1,343	—17
Capitol District	985	1,099	+12
Catskill–Lower Hudson	1,366	1,982	+45
State	10,189	12,200	+20

Counties with the largest volume of growing stock are scattered among three geographic units. St. Lawrence County has 762 million cubic feet, Essex 624 million, and Delaware 561 million. All but five counties in the resurvey had increases in growing-stock volume.[3] Fourteen counties had increases of more than 50 percent. Three of the counties that had decreases—Essex, Hamilton, and Warren—make up the Eastern Adirondack geographic unit.

Forest industries own about 10 percent of the growing-stock volume in New York. Public ownership (mostly state) accounts for another 8 percent. The remainder, roughly four-fifths, is owned by farmers, nonfarm rural residents, absentee owners, and other miscellaneous individuals and organizations. Softwoods make up 40 percent of the growing-stock volume on publicly owned forest land. On privately owned forest land, softwoods make up about 25 percent.

[3] These changes and other comparisons of data for 1950 and 1968 are based upon recomputed volumes for 1950. See discussion of "Comparisons Between Inventories" in the appendix.

Publicly owned stands of timber average about 1,100 cubic feet per acre while privately owned timber stands average almost 840 cubic feet per acre. This lower volume per acre is due partially to the large increase of commercial forest land from abandoned farmland that had little or no growing-stock volume in 1950 and now is classified as sapling-seedling stands.

Poletimber Makes Up A Greater Volume

Volume of poletimber trees makes up one-half of the growing-stock volume, an increase from the earlier proportion. The largest differences in volume between 1950 and 1968 are those for the 6- to 12-inch diameter classes (fig. 2). The volume of growing-stock trees in these classes increased 28 percent between surveys,

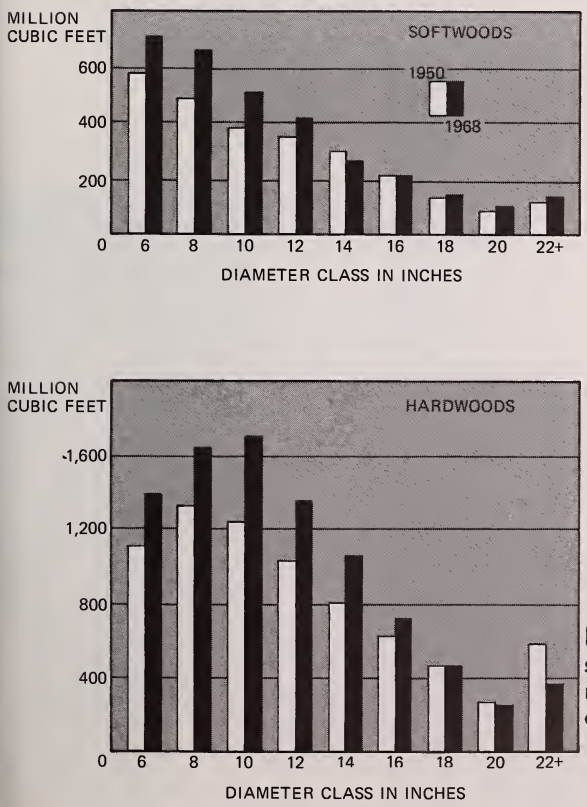


Figure 2. — Growing-stock volume increased more rapidly in the lower diameter classes.

whereas the volume in tree classes 14 inches and larger increased only 5 percent.

Softwoods and hardwoods increased in volume at approximately the same rate—about 20 percent—and their volume relationship to each other remained about the same. Hardwoods made up 74 percent of the growing-stock volume.

Sugar Maple Predominates Among Growing Stock

Sugar maple is more abundant than any other species in the State. It accounts for 2.0 billion cubic feet, one-sixth of the growing-stock volume. The soft maples (red and silver) were next in abundance with 1.6 billion cubic feet, and were followed closely by the oaks (all species combined) with 1.4 billion, and by hemlock with 1.1 billion. No other species had as much as 1.0 billion cubic feet.

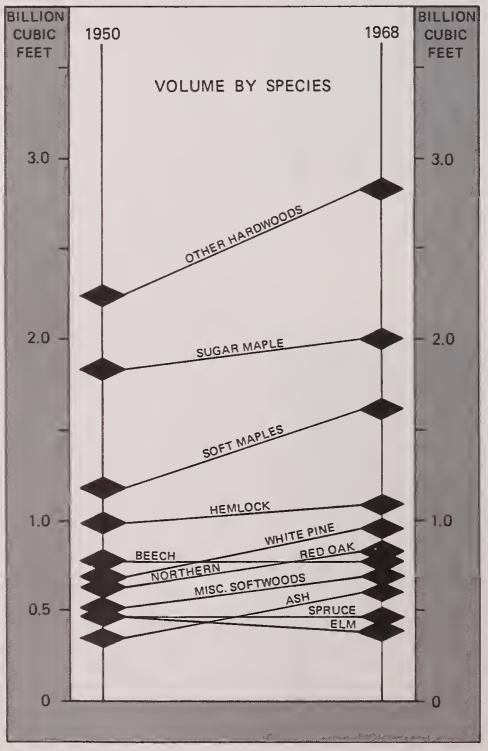


Figure 3.—Most species increased in volume, but volumes of beech and spruce remained about the same.

Most of the abundant species increased considerably in cubic-foot volume between surveys. Soft maples, white pine, northern red oak, and ash increased by more than 30 percent; and sugar maple and hemlock increased by almost 10 percent (fig. 3). Spruce and beech volumes remained about the same; but sweet birch, yellow birch, and elm decreased in volume. Elm had the greatest decrease, from 505 million to 391 million cubic feet, a decrease of more than 20 percent. This large loss was due principally to the Dutch elm disease.

Sawtimber Volume Increased 11 Percent

Even though the largest increases in volume were in the lower diameter classes, sawtimber volume increased 11 percent between surveys, to 24.4 billion board feet (fig. 4). This averages out to 1,700 board feet per acre of commercial forest land. Forty percent (9.7 billion board feet) of the sawtimber volume is in the three northern units, 35 percent (8.5 billion board feet) is

New York Conservation Dep. Photo

Figure 4. — This better-than-average sawtimber stand helped to increase total sawtimber volume by more than 10 percent.

in the three southwestern units, and 25 percent (6.1 billion board feet) in the two southeastern units.

Stand-size classes used in the resurvey were based upon plurality of stocking. Stands classified as sawtimber by this procedure averaged a little more than 3,900 board feet per acre for the State as a whole and about the same for each of the three major regions. In 1950 sawtimber stands (classified on a volume-per-acre basis) averaged 4,600 board feet per acre in the Southwestern and Northern Regions and only 2,900 board feet per acre in the Southeastern Region.

Volume Increased Most In Catskill-Lower Hudson Unit

Changes in the sawtimber-volume inventory varied considerably among the geographic units. These changes are the result of much larger sawtimber removals in some units than in others during the period between surveys. Changes ranged from a decrease of 28 percent in the Eastern Adirondack unit to an increase of 70 percent in the Catskill-Lower Hudson unit. The sawtimber volumes for each of the geographic units in 1950 and 1968, and their difference in percent, are shown in the tabulation below:

Geographic unit	*1950 (million board feet)*	*1968 (million board feet)*	*Change (percent)*
Lake Plain	2,904	2,815	−3
Southwest Highlands	2,032	2,360	+16
South–Central Highlands	3,247	3,368	+4
St. Lawrence–N. Adirondack	2,549	3,576	+40
Western Adirondack	2,784	2,816	+1
Eastern Adirondack	4,645	3,342	−28
Capitol District	1,539	2,209	+44
Catskill–Lower Hudson	2,307	3,922	+70
State	22,007	24,408	+11

Four counties in the State have an inventory volume of more than 1 billion board feet each—St. Lawrence 1.6, Essex 1.6, Lewis 1.1, and Franklin 1.0. About one-third of the counties in the State had decreases in sawtimber volume, ranging from a negligible decrease of 1 percent in Oswego County to decreases of 49 percent in Genesee and Hamilton Counties in the Lake

Plain and Eastern Adirondack units, respectively. Another third of the counties had increases of up to 50 percent, and the remaining third of the counties had increases of more than 50 percent.

Volume Increases Were Greatest For Small Sawtimber

More than one-half (56 percent) of the sawtimber volume is concentrated in trees less than 15.0 inches in diameter at breast height. Sawtimber trees in the 12- and 14-inch diameter classes and softwood sawtimber trees in the 10-inch diameter class together make up 13.7 billion board feet out of a total of 24.4 billion board feet for all diameter classes (fig. 5). At the time of the initial survey, the sawtimber volume was about equally divided between trees that were under 15.0 inches in diameter and those that were over 15.0 inches in diameter.

Softwood sawtimber volume in the State increased by more than 13 percent, and it now totals 7.0 billion board feet. However, the changes in sawtimber volume differed considerably among the three major regions. The volume of softwood sawtimber almost doubled between surveys in the three geographic units

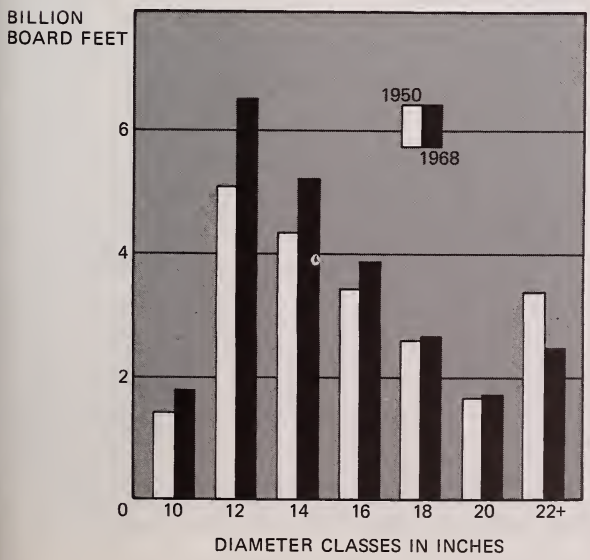


Figure 5. — Sawtimber volume in the 10- to 14-inch diameter classes increased 2.8 billion board feet, but the volume in the larger diameter classes decreased 0.4 billion board feet. The 10-inch class is for softwoods only.

that make up the Southwestern Region; but in the three geographic units that make up the Northern Region, the volume decreased about 10 percent. In the two geographic units that make up the Southeastern Region, softwood sawtimber volume increased almost 30 percent.

Hardwood sawtimber volume, for the State as a whole, increased 10 percent. In the northern units, the hardwood volume increased only 2 percent, not nearly enough to offset the big decrease in softwood volume. As a result, there was an overall decrease of 2.5 percent in sawtimber volume for the northern units. Sawtimber volume of hardwoods decreased 5 percent in the southwestern units; however, the large increase in softwoods made an increase in total sawtimber volume of slightly more than 4 percent. The biggest increase in hardwood sawtimber volume occurred in the southeastern units, where it reached a high of 80 percent.

Sugar maple makes up almost one-sixth (3.9 billion board feet) of the total sawtimber volume in the State. Four other species account for more than 2 billion board feet each—white pine (2.6 billion), hemlock (2.6 billion) soft maples (2.3 billion), and northern red oak (2.0 billion).

Few Species Decreased in Volume

Sawtimber volume of most species increased. Some increased more than 75 percent. Softwood sawtimber volume increased 13 percent and hardwood sawtimber volume increased 10 percent. However, some species decreased in volume. Sugar maple sawtimber volume (in 1950 nearly 4.5 billion board feet) decreased 14 percent to 3.9 billion board feet in 1968 (fig. 6). Beech decreased 7 percent to 1.8 billion board feet. Sawtimber volume of elm, spruce, and yellow birch decreased about 25 percent from about 1.2 billion board feet each to about 0.9 billion each.

Comparisons of sawtimber volume on a regional basis show that the volume of sugar maple is greater in the Southwestern Region than in either of the other regions, the volume of white pine is largest in the Southeastern Region, and the volume of hemlock is largest in the Northern Region.

The sawtimber volume of sugar maple ranges from 247 million board feet in the Capitol District unit to 684 million in the South-Central Highland unit. Sawtimber volumes of the other more abundant species also vary considerably by geographic units as indicated below, in millions of board feet:

Species	*Least volume*	*Unit*	*Greatest volume*	*Unit*
White pine	65	Southwest Highlands	609	Eastern Adirondack
Hemlock	150	Lake Plain	464	South-Central Highlands
Soft maples	99	Capitol District	421	South-Central Highlands
N. red oak	74	Western Adirondack	675	Catskill-Lower Hudson
Beech	55	Capitol District	383	St. Lawrence-N. Adirondack

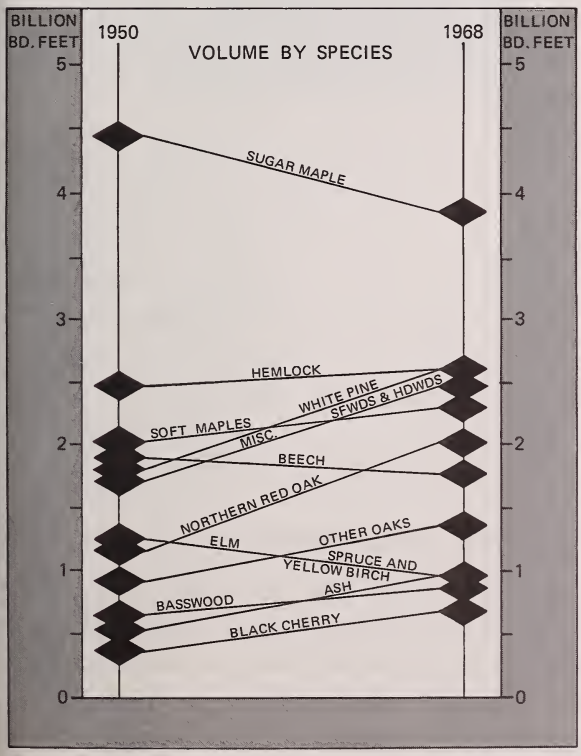


Figure 6.—The decrease in sugar maple board-foot volume was more than offset by the increase in northern red oak board-foot volume.

Hardwood Sawtimber Quality Has Declined Greatly

The quality of sawtimber, as expressed by the percentage of volume in standard-lumber log grade 1, has decreased between surveys. This is due to heavier cutting of sawtimber trees in the largest diameter classes and to the large volume of ingrowth. Trees that grew large enough in diameter to come into the sawtimber tree-size class during the 18-year period are too small to have a log that will meet the specifications for grade 1.

In the initial survey, the quality of white pine was based upon specifications for only three standard-lumber log grades; but in the resurvey, specifications for four grades were used. None of the grade specifications are identical to those used in 1950. Although not directly comparable, the volume of white pine that met grade 1 specifications on both surveys was only about 1 percent of the total board-foot volume for white pine.

Hardwood sawtimber volume (2.6 billion board feet) that meets log-grade 1 specifications makes up 15 percent of the total volume. This is about one-half, by both percentage and volume, of that that met the same specifications in 1950. Northern red oak was the only species that did not decrease significantly in quality; however, it did decrease from 27 percent to 25 percent (fig. 7). The group of other oaks had the next larger proportion of grade-1 volume—20 percent.

Soft maples and beech had the smallest proportion of their board-foot volume in grade-1 quality sawlogs as compared to any other hardwood species, in both 1950 and 1968. The volume of soft maples that met grade-1 specifications dropped from 24 percent of the total to 8 percent, and the volume of beech in this same class dropped from 16 percent to 5 percent.

FOREST AREA INCREASED

Big changes in land use took place in New York State during the past two or three decades. Farming on small farms and marginal cropland became less profitable; the younger generation born on farms left their homes to find more lucrative employment elsewhere; throughways and highways absorbed numerous

New York Conservation Dep. Photo

Figure 7. — Volume in high-quality trees like this made up 25 percent of the northern red oak sawtimber volume.

farms that crossed their rights-of-ways. Thousands of farms were abandoned, and land formerly in crops and pasture reverted to weeds, brambles, and shrubs. Seeds of forest trees in nearby woods were dispersed far and wide over much of this abandoned land. The tree seeds began to germinate under favorable conditions, and eventually trees were to be seen in place of the farm crops of former years. Now this land is classified as commercial forest land.

According to the Census of Agriculture for 1945 and 1964, the number of farms decreased from 149,500 to 66,500, a reduction of 83,000 farms. The total acreage in farms (including farm woodlots) decreased more than 5 million acres in the 19-year period. There was a corresponding increase in the average size of farms from 117 to 185 acres.

On these farms in 1945, there were 8.4 million acres classified as cropland and another 4.5 million acres classified as pasture (excluding woodland pasture). The latest census (1964) shows that the cropland acreage has fallen to 6.5 million acres and the pasture land has dropped to 2.3 million acres. All together there was a reduction of 4.1 million acres of cropland and open pasture land. Much of this has reverted to forest land.

Largest Increases in Forest Land Were in the Southwest

Commercial forest-land area in the State increased 1.7 million acres, in the 18-year period between the two surveys, to the present total of 14.3 million acres. This is about a 14-percent increase. This large increase was not uniformly distributed among the geographic units. The Southwestern Region increased 23 percent, from 4.6 million to 5.7 million acres of commercial forest land. The Northern region averaged an increase of 15 percent and now contains 5.3 million acres of commercial forest land. A decrease of about 1½ percent occurred in the acreage of commercial forest land in the Southeastern Region.

Considerable variation is shown in the percentages of change among the geographic units that make up the three regions. These changes ranged from a 12-percent decrease for the Catskill-Lower Hudson unit to a 31-percent increase for the Lake Plain unit. Acreages for all geographic units and their percentages of change are shown below:

Geographic unit	*1950 (thousand acres)*	*1968 (thousand acres)*	*Change (percent)*
Lake Plain	1,440	1,889	+31
Southwest Highlands	1,480	1,656	+12
South-Central Highlands	1,699	2,153	+27
St. Lawrence–N. Adirondack	2,080	2,505	+20
Western Adirondack	1,259	1,488	+18
Eastern Adirondack	1,264	1,295	+ 2
Capitol District	1,009	1,240	+23
Catskill–Lower Hudson	2,335	2,055	—12
State	12,566	14,281	+14

Counties generally increased in commercial forest area between surveys. Twenty-two counties had increases in forest land of

more than 20 percent; 25 counties had increases of 1 to 20 percent; eight counties had decreases in commercial forest-land area. Only four counties in the State, other than the seven metropolitan counties excluded from the survey, have less than 20 percent of their land in commercial forest areas; Monroe County wtih 62,000 acres of forest had the lowest percentage, only 14 percent. Seven counties have more than 60 percent of their land area in commercial forests; Lewis County, with more than one-half million acres of commercial forest land, ranks highest with 68 percent.

Ownership of Commercial Forest Land Changed Slightly

Most of the commercial forest land (94 percent) is privately owned. Forest industry holdings total about 1.2 million acres, a slight increase over their 1950 holdings (fig. 8). The acreage of farmer-owned forest land is 3.7 million acres. This is larger than the acreage reported in 1950 for farm woodland (which is part of an operating farm but excludes forest land not adjacent

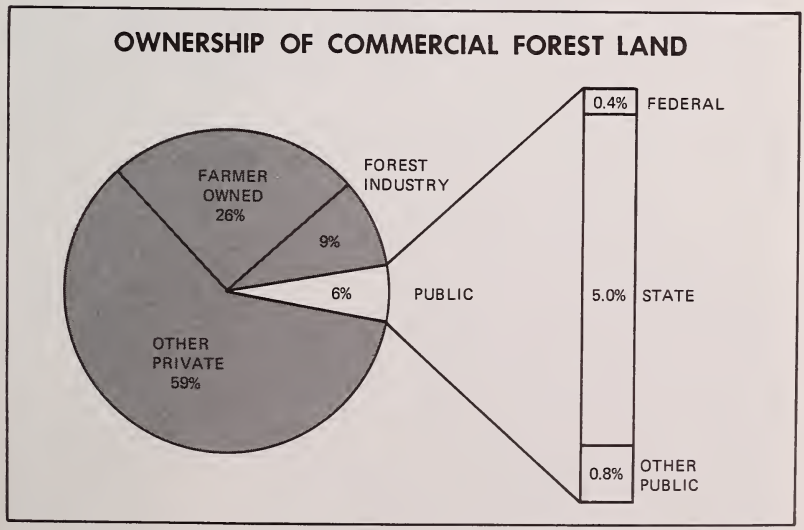


Figure 8.—All but 6 percent of the commercial forest land in New York is privately owned. The state owns 5 of that 6 percent.

to it). Nonfarm rural residents, absentee owners, and miscellaneous private ownerships account for almost 60 percent of the commercial forest land, or a total of 8.5 million acres.

The State has purchased, since 1930, a large acreage of abandoned farmland. Much of this land was planted to white pine, red pine, spruce, and other species (fig. 9). Some of this plantation timber is now being harvested. In addition to the State-owned plantations, privately owned plantations (consisting of different ages dating back over 50 years) are to be found throughout the State. The larger blocks of plantations are to be found on State-owned lands, whereas many of the privately owned plantations are 1 acre or less.

The 1968 estimate of plantation acreage, based upon Forest-Survey sample plots that fell in recognizable plantations, is 564,000 acres, although a much larger acreage was reported planted and the plantations had various degrees of survival.

Figure 9.—Most of the larger plantations are found on State-owned land.

Poorly Stocked Stands Increased Greatly in Area

Nine percent of the commercial forest land area (1.3 million acres) is classified as nonstocked areas. Although 342,000 acres of such land were reported for 1950, abandoned farmland sufficiently stocked with seedlings and saplings at that time (but classified as nonforest) would have brought that total up to 995,000 acres. Even with the revised 1950 estimate, the acreage of nonstocked forest land has increased more than 30 percent.

Stand-size classifications are now based upon plurality of stocking, evaluated in terms of basal area and/or number of growing trees at each of 10 points against a standard of 75 square feet of basal area per acre. Stand-size classifications used on the initial survey were based upon volumes per acre. Acreages in these categories for 1950 and 1968 are not directly comparable.

One noticeable effect of the new classification procedure is that usually more sawtimber trees are found in stands classified as poletimber or sapling-seedling. Sapling-seedling stands, now totaling 6.1 million acres, more than doubled in area between surveys. This is due partly to definitions and partly to the large increase in commercial forest land.

Poletimber and sawtimber stands decreased in area—38 percent and 7 percent respectively—to 2.6 million acres for poletimber stands and 4.2 million acres for sawtimber stands. If timber stands on the resurvey had been classified on a board-foot volume-per-acre basis as was done on the initial survey, the sawtimber stand-size class acreage would have increased to 5.5 million acres.

Acreage of Softwood Types Increased 25 Percent

Forest type classifications are also based upon a plurality of stocking, but they are more comparable to those for the initial survey than stand-size class. Softwood types, as a whole, increased 25 percent during the period between surveys to 2.5 million acres. The largest increases were for the white pine and red pine forest types, which now totals 1.3 million acres (fig. 10). The spruce-fir forest type decreased about 5 percent.

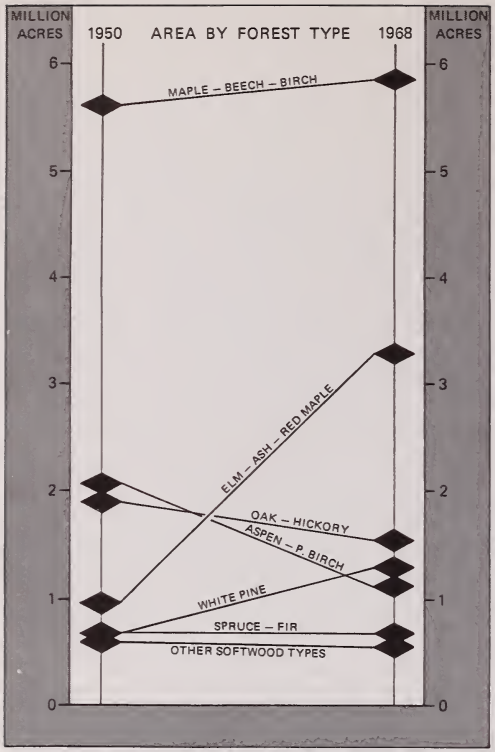


Figure 10. — The great increase in the elm-ash-red maple forest type was offset by decreases in the oak-hickory and aspen-paper birch types.

Hardwood forest types had an overall increase of 1.2 million acres, which brought the new totals to 11.8 million acres. The sugar maple-beech-yellow birch forest type, which made up 45 percent of the total forest area in 1950, increased 4 percent in area to 5.8 million acres, but now makes up 41 percent of the total forest area. The elm-ash-red maple forest type acreage more than tripled in size between surveys; however, this great increase was offset by decreases in the acreages of the oak-hickory and aspen-paper birch forest types.

Noncommercial Forest Land Area Also Increased

Forest lands in the Adirondack and Catskill Forest Preserve make up the bulk of the acreage classed as noncommercial, that is, productive forest land withdrawn from timber cutting and nonproductive forest land. The total area of the Forest Preserve

is about 2.6 million acres—made up of 2.2 million acres of productive forest land, 0.2 million acres of nonproductive forest land, and 0.2 million acres of water. Other noncommercial forest land outside the preserve totals about a quarter million acres.

Noncommercial forest-land area over the entire State increased almost 20 percent during the 18-year period to the present total of 2.9 million acres, including 0.4 million acres of unproductive forest land. Forest-land area in the Forest Preserve increased 9 percent, and noncommercial forest land outside the preserve increased 125 percent.

THE PICTURE OF CHANGE

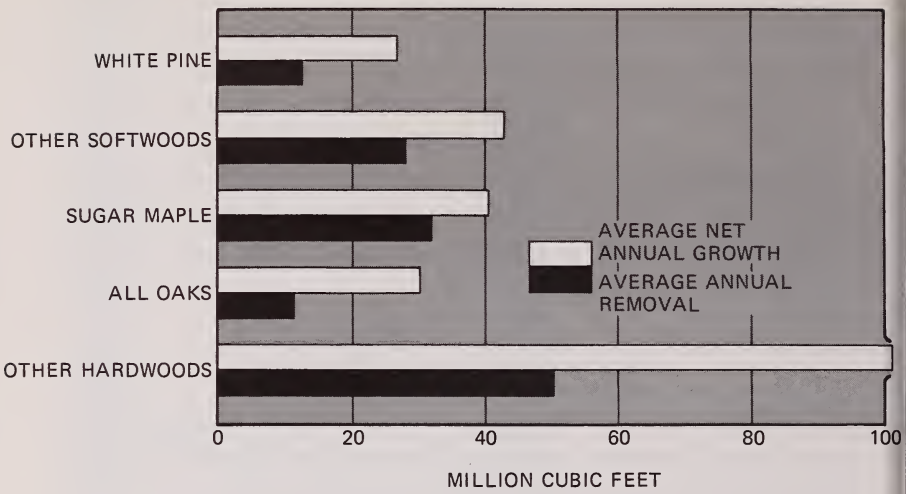
Timber volume increased 2 billion cubic feet during the 18-year period between surveys. This increase resulted from an average annual net growth of 245 million cubic feet and an average annual timber removal of 134 million cubic feet—an average annual change of +111 million cubic feet. These averages do not indicate whether the ratios of annual removal to annual growth are increasing or decreasing.

To more completely analyze the changes that took place, data from the inventory, net annual growth, timber removal, mortality, and current volume were compiled for several years, including 1967 (table 17). These computer-compiled estimates do not provide as much detail as is available from the average annual net-growth and average annual timber-removal estimates based upon the remeasured plots. In analyzing the change during the 18-year period, the data based upon averages for the period are presented first.

Average Annual Net Growth Exceeds Removal

Growing stock.—The average annual net growth of growing stock, including all species, was almost double the average annual removal. Hardwood growing stock made up about 70 percent of both the growth and removal. The annual growth of softwoods was 69 million cubic feet and the annual timber removal was 41 million cubic feet. For hardwoods, growth was

Figure 11.—Average annual net growth and removal of growing stock, 1950 to 1967.



176 million and removal was 93 million cubic feet. Most of the species had a much larger volume of growth than removal (fig. 11). The principal exceptions were yellow birch, sweet birch, and elm.

The volume of trees that grew to 5.0 inches d.b.h. or larger (ingrowth trees) during the 18-year period between measurements made up more than one-half (54 percent) of the average annual gross growth. However, in relation to the average annual net growth, the ingrowth trees accounted for almost 90 percent of the volume.

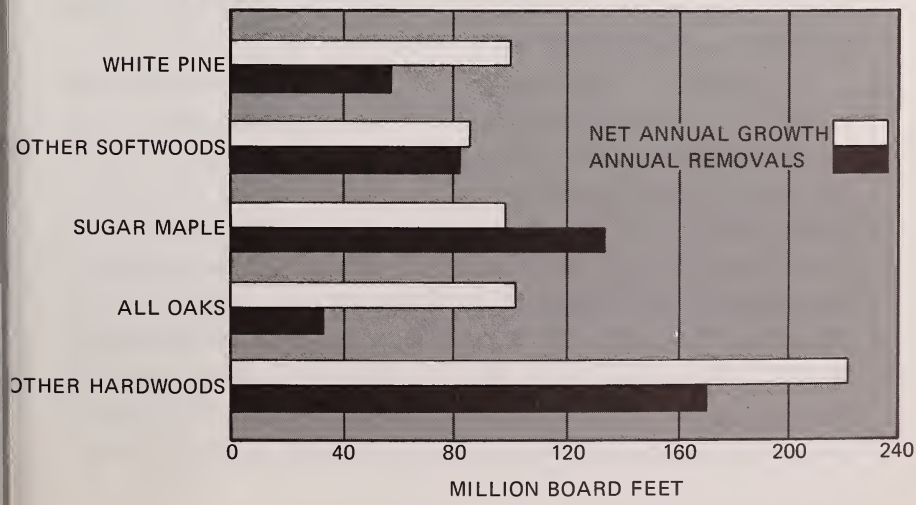
Two conditions were responsible for this unusually high percentage. Growing-stock mortality was severe (especially for elm). It reduced the average annual gross growth by 26 percent. Cull-tree increment (volume of trees classed as growing stock on the initial survey and now classed as rough or rotten trees) was also large; it reduced average annual gross growth by another 13 percent. Mortality and cull-tree increment together reduced the average annual gross growth by more than a third. The components of average annual change and their volumes are shown below:

Component	*Million cubic feet*	*Per-cent*
Growth on growing-stock trees	184	46
Volume and growth of trees that became poletimber	+219	+54
Average annual gross growth	403	100
Cull-tree increment	— 53	—13
Growing-stock mortality	—105	—26
Average annual net growth	245	61

Sawtimber.—Sawtimber growth averaged 606 million board feet per year, and sawtimber removal averaged 473 million board feet. The average annual removal of sawtimber volume is almost 80 percent as large as the volume of average annual net growth. Timber growth per acre per year on commercial forest land, excluding nonstocked areas, averaged 19 cubic feet, including 47 board feet of sawtimber.

Sawtimber-volume removal varied considerably by species in relationship to volume of growth. White pine sawtimber removal was 58 percent of the growth volume, but the sum of sawtimber removals for all other softwoods almost equaled the volume of their growth (fig. 12). Sugar maple sawtimber volume removal

Figure 12.—Average annual net growth and removal of sawtimber, 1950-1967.



exceeded the volume of growth by almost 35 percent, while the volume of sawtimber removal for all oaks was a little more than 30 percent of net annual growth.

High mortality of sawtimber trees and cull-tree increment reduced the average annual gross growth by more than one-fourth. As a result of this and the long period between surveys, the volume of trees that became sawtimber size—and their volume of additional growth—made up a very large portion of the average annual net growth: 80 percent. The components of average annual change and their volumes are shown below:

Component	*Million board feet*	*Percent*
Growth on sawtimber trees	344	42
Volume and growth of trees that became sawtimber	+483	+58
Average annual gross growth	827	100
Cull-tree increment	— 89	—11
Sawtimber mortality	—132	—16
Average annual net growth	606	73

Sawtimber removal exceeds growth in Northern Region.—On a statewide basis, the average annual timber removal of both growing stock and sawtimber was less than the average annual net volume of growth. But this situation is not uniform across the State. The timber-volume removal in the Northern Region was greater in relation to the volume of net annual growth than in the other two regions.

Growing-stock volume removal in the Northern Region was more than 75 percent of the net volume of growth, while in the Southwestern Region the removal was about 50 percent, and in the Southeastern Region about 30 percent.

Sawtimber-volume removal in the Northern Region exceeded the volume of net annual growth by about 7 percent; however, the softwood component in this removal exceeded growth by more than 25 percent (fig. 13). Although total sawtimber volume removal was less than the volume of annual growth in the Southwestern Region, the hardwood (mainly sugar maple) removal exceeded the volume of growth by more than 10 percent. In the

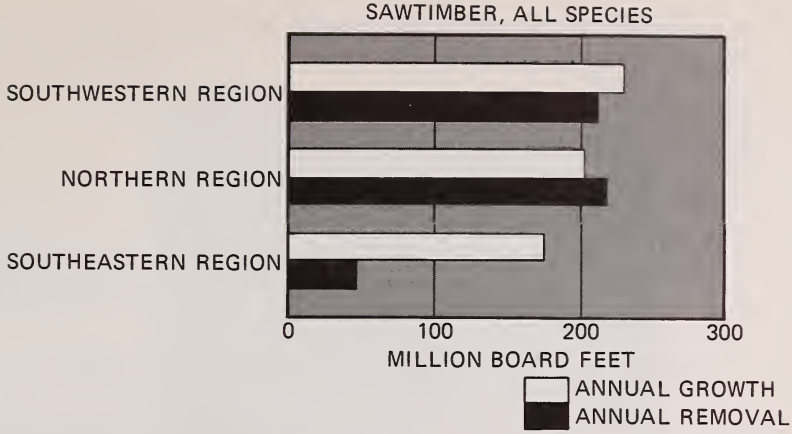


Figure 13.—Sawtimber average annual net growth exceeds volume of sawtimber removal in all but the Northern Region.

Southeastern Region, the volume of sawtimber removal was less than 30 percent of the volume of annual growth.

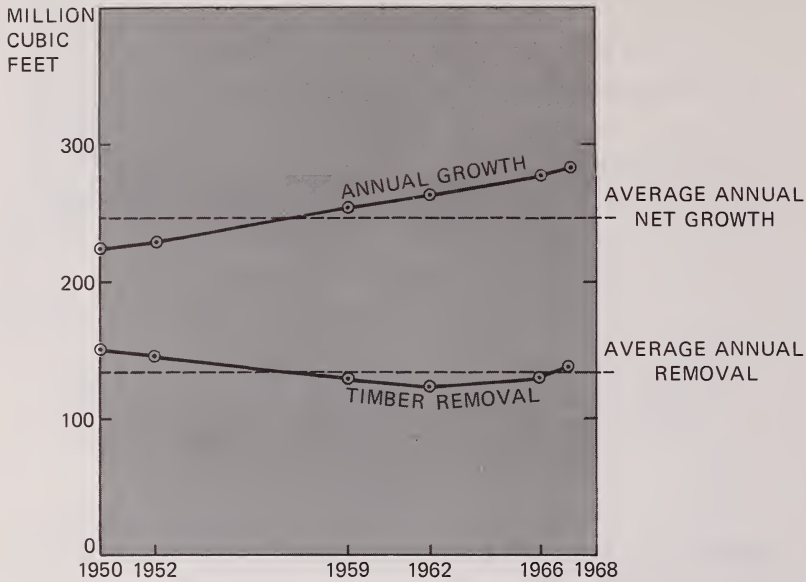
Annual Growth for 1967 Exceeds Removal

Growing stock.—The current net annual growth-removal relationship for 1967 is different from the relationship of average annual net growth to removal for the period between surveys. The ratio of net annual growth to removal of growing stock in 1967 was 2.1:1 as compared to 1.6:1 in 1952, and 1.8:1 for the entire period.

Net annual growth of growing stock for 1967 was 282 million cubic feet, or about 15 percent more than the average annual net growth for the period. Annual timber removal of growing stock decreased from the beginning of the period to about 125 million cubic feet in 1962 (fig. 14). Then the volume of timber removal began to increase, and in 1967 the removal reached 137 million cubic feet, or slightly more than the average for the 18-year period.

The picture is not the same when softwoods and hardwoods are looked at separately. Annual softwood growing-stock removal

Figure 14.—Considerably more timber can be cut before significantly changing the ratio of annual growth to removal.



was more than 85 percent of the net annual growth for 1952, but decreased to only one-third of the annual growth in 1967. However, hardwood timber removal was 55 percent of the net annual growth in 1967 as well as in 1952.

Sawtimber.—Sawtimber net annual growth and removal relationships are about the same as described for growing stock. The ratio of net annual growth to removal of sawtimber volume in 1967 was larger than that for 1952. These ratios were 1.4 : 1 and 1:1 : 1 respectively.

Net annual growth of sawtimber in 1967 was 656 million board feet—about 8 percent greater than the average annual net growth for the period. Annual sawtimber removal decreased during the first part of the period to about 426 million board feet in 1962. Annual removal then increased to 463 million board feet in 1967.

Interpreting the Picture

The utilization of the timber resource for fiber products has not kept pace with the increase in the forest inventory. Current

annual growth exceeds current removal in both board feet and cubic feet. Timber removal was higher in the early 1950's than now; but after reaching a low ebb in the early 1960's, removal is now on the increase. Annual growth probably will still be substantially greater than removal in the 1970's, even though the ratio between annual growth and removal may decrease. If the present trends continue, the inventory volume will continue to increase about 1 percent a year throughout the 1970's.

Timber Products Trends

A COMPREHENSIVE timber-products-removal survey based upon a 100-percent canvass of all New York's primary wood processors was made in 1968 by the Northeastern Forest Experiment Station and the New York State Conservation Department. The report on this survey showed that 101 million cubic feet of industrial roundwood (excluding fuelwood) were harvested from New York's forests in 1967. More detailed findings of this survey than are shown in this report are to be found in *Timber Products Production in New York, 1967* (*3*).

The timber-products-removal estimates for 1952 reported in the first timber resource report for New York (*1*) totaled 122 million cubic feet of industrial roundwood. In the 15-year period between timber-products-production surveys, the output of industrial products dropped 20 percent (24 million cubic feet).

An intermediate estimate of timber-products output based on reported lumber production and pulpwood production for 1962 was made by the Northeastern Station for *Timber Trends in the United States* (18). This estimate for 1962 showed that the production of industrial timber products dropped 28 million cubic feet to 94 million cubic feet in the 10-year period between the national compilations for 1952-53 and 1962-63.

The New York State Conservation Department and the State University College of Forestry conducted a cooperative study of industrial roundwood production and consumption for 1963-64 and published the results as average annual consumption for the 2-year period (*11*). That report showed that 89 million cubic

feet of industrial roundwood were cut in New York, of which 6 million feet were exported. This cut of 89 million cubic feet was 5 million less than the 1962 estimate.

Summarized below are the breakdowns of the above estimates of the industrial roundwood production, in millions of cubic feet:

Year	*Soft-woods*	*Hard-woods*	*Total*
1952	61.0	61.1	122.1
1962	30.1	64.2	94.3
1963-64	28.4	60.6	89.0
1967	22.2	75.7	97.9

For all species combined, there was a downward trend in industrial roundwood-products production from 1952 to 1964, and then a slight upsurge; however, for the softwood species, there was a continuing downward trend. The large increase in hardwood industrial roundwood-products production in 1967 was sufficient to make an overall increase in the production for all species.

EMPLOYMENT IN THE TIMBER-RELATED INDUSTRIES

Employment is reported by the Bureau of the Census for all major industries, by states. In New York State manufacturing accounted for about 30 percent of total employment in 1967; wholesale and retail trades accounted for about 20 percent; and the transportation, contract construction, and agricultural service industries accounted for about 10 percent. All these have some employment that can be attributed to timber. All other major industries (primarily services) accounted for about 40 percent of the total employment.

New York, in 1967, had a civilian work force[4] of 8.0 million persons out of the Bureau of the Census population estimate of 18.3 million people (*12*). This was a high-rate-of-employment year, with 7.7 million workers employed. The unemployment rate

[4] Civilian work force is defined by the U.S. Bureau of the Census as persons 14 years and older, outside the Armed Forces, and outside of institutions, who are working or looking for work.

was the lowest in many years—only 3.9 percent of the civilian work force.

Employment in New York State for 1967 in the major timber-related industries totaled nearly 1.4 million workers (table 91). The employment attributed to timber was estimated to be 318,500 employees, with total wages and salaries of about 2.0 billion dollars. This employment was mostly in the secondary manufacturing, construction, transportation and marketing activities, which made up about 90 percent of the total. One reason that this percentage is much greater than the 72 percent for the United States as a whole is that New York consumed ten times more industrial wood than was harvested within the State.

In the Timber-Supply Industry

The timber-supply industry includes only the employment involved in the managing and harvesting of logs and related products.

Forest-management employment includes forest protection and other related management activities. Part-time employment was converted to an equivalent full-time basis. Professional foresters made up about a tenth of the total employed. Total forest-management employment in New York for 1952 was estimated to be 1,000 employees (*1*). In 1954 forest-management employment was estimated to be 2,000 employees and in 1958 about 2,150 employees (*6*). The estimate for 1952 was probably too low, and there is no published estimate for any year since 1958. An estimate of about 3,000 employees for 1967 seems to be a reasonable one.

Employment in the harvesting of logs and related products is estimated to be about 8,000 employees, as derived from the 1954 and 1958 estimates (*7*). Total employment in the timber-supply industry for 1967 is estimated to be approximately 11,000 employees, with estimated earnings of more than 50 million dollars, all attributable to timber.

In the Timber-Based Manufacturing Industries

Timber-based manufacturing industries as discussed in this report include those that use raw material such as logs and bolts (primary manufacturing industries) and those that use products such as lumber, plywood, and paper (secondary manufacturing industries). The major industries are classified by the U. S. Bureau of the Census as follows: 24—Lumber and wood products; 25—Furniture and fixtures; and 26—Paper and allied products.

Employment in the manufacturing industries in New York State totaled 1.9 million workers, almost one-fourth of the total 1967 labor force. Employment in the timber-based manufacturing industries was 105,800 workers—15,300 in lumber and wood products (24), 23,500 in wood furniture and wood fixtures (25), and 67,000 in paper and allied products (26). Employment attributed to timber totaled 69,500 workers, or about 66 percent of the total employment in these three major industries.

Average weekly earnings in 1967 of those who worked in the timber-based industries were $112, an average of about $2.55 an hour. This is slightly below the average of $114 per week (at about $2.90 per hour) for all manufacturing industries in New York State. Weekly earnings of workers in the lumber and wood-products industries were considerably lower, on the average, than for the workers in the other two timber-based industries, as shown below:

Timber-based industry	*Average hourly earnings*	*Average weekly earnings*
Lumber and wood products	$ 2.29	$ 95.52
Furniture and fixtures	2.62	106.63
Paper and allied products	2.75	117.43
Total manufacturing industries	$ 2.89	$114.44

Employment in the timber-based manufacturing industries in New York for 1952 was estimated to be 105,000 workers (*1*). Although the total for 1967 was about the same, there were about 2,000 fewer employees in the lumber and wood-products industries and about 2,000 more employees in the paper and allied products industries.

Employment and annual earnings of those who worked in the timber-based manufacturing industries reported in *County Business Patterns* (*17*) were used to derive estimates for breakdowns of totals in the *New York State Statistical Yearbook* (*12*).

The employment in the timber-based manufacturing industries was greater in the metropolitan area than in any of the other three regions as shown below:

Region	*Number of employees (thousands)*	*Earnings (million dollars)*
Southwestern	28.0	42.7
Northern	15.5	24.3
Southeastern	14.8	23.7
Metropolitan	47.5	69.7
State	105.8	160.4

In Other Timber-Based Industries

These industries include construction, transportation, and marketing. Construction embraces all activities involved in the fabrication of lumber, plywood, and other products into buildings and other fixed structures. Transportation and marketing includes all activities involved in the transportation of logs and related products from local points of delivery to manufacturing plants or consumers, transportation of primary and secondary products from points of manufacture to final consumers, and the marketing of these products through wholesale and retail channels.

Total employment in these three industries in 1967 amounted to 1.0 million workers. About one-fifth (200,000) of this employment was attributed to timber. These industries accounted for roughly two-thirds of the employment attributed to timber for all the timber-related industries.

OUTPUT OF THE PRIMARY MANUFACTURING INDUSTRIES

Primary wood-using manufacturing plants are defined as those that use logs or bolts as raw materials. The most important ones are the sawmills, pulpmills, and veneer plants. These are classified by the U.S. Bureau of the Census (*17*) as follows:

Code	*Industry*
242	Sawmills and planing mills
2432	Veneer and plywood plants
261	Pulpmills
262	Paper mills, except building paper
263	Paperboard mills

A complete list of codes for all industries that use wood in one form or another is shown in table 90.

Output of roundwood products in 1967 totaled 133.4 million cubic feet, about 80 percent of it from the hardwood species. Industrial roundwood products made up almost three-fourths (97.9 million cubic feet) of the total. Fuelwood made up the other fourth. In addition to the volume of roundwood products produced, 16.7 million cubic feet of plant byproducts were also utilized for fuelwood, pulpwood, and miscellaneous products.

Production of sawlogs, veneer logs, and pulpwood bolts accounted for 93 percent (91.0 million cubic feet) of the total output of industrial roundwood products from New York's forests in 1967. Poles, posts, and other miscellaneous products accounted for the remaining 7 percent.

The 1967 lumber production came from 302 sawmills scattered throughout the State (fig. 15). More than one-third of the saw-

Figure 15.—This sawmill in northern New York has been operating continuously for more than 60 years.

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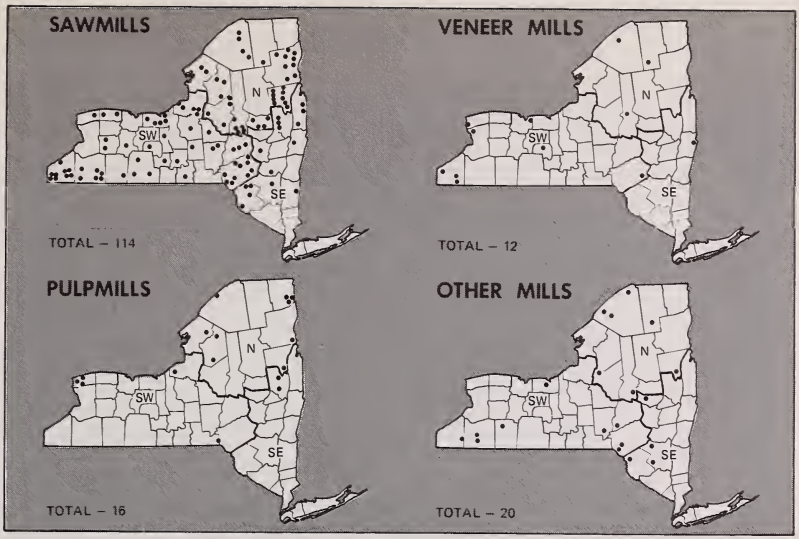

Figure 16.—Primary wood-using mills and plants in New York, 1967, by county and region. The sawmills shown are only those that produced more than 1 million board feet in 1967. The other mills include splitting, bolter, and ladder mills (9), handle mills (5), post and pole plants (4), and flakeboard and excelsior plants (2).

mills have a capacity of 1 million or more board feet of production per year (fig. 16). Most of the larger mills are in the Southwestern Region.

Sawlog Production Is Down from 1952

Many small sawmills have gone out of production, mostly because of increasing costs and decreasing timber quality (*3*). In 1952, because of the high wartime lumber consumption, about 1,500 sawmills were operating in New York. By 1967 this number had dropped to 300 operating sawmills. Sawlog production dropped from 484 million board feet in 1952 to 353 million in 1967, a decrease of about 27 percent. This decrease in production is not as severe as it may seem, because the production of timber products in 1952 was abnormally greater than in 1950 due primarily to timber-salvage operations after the 1950 hurricane.

Figure 17.—White pine and hemlock sawlogs like these accounted for a fifth of the 1967 sawlog production.

NEW YORK CONSERVATION DEP. PHOTO

About one-fifth of the sawlog production came from softwood species, principally white pine and hemlock (fig. 17). Most of the softwood production was in the Northern and Southwestern Regions. The other four-fifths of the sawlog production came from hardwood species, of which sugar maple sawtimber volume ranked first. The Southwestern Region produced about one-half of the sawlog output for the State as shown below, in millions of board feet:

Region	*Softwoods*	*Hardwoods*	*Total*
Southwestern	14.5	151.0	165.5
Northern	37.0	102.5	139.5
Southeastern	12.0	36.4	48.4
State	63.5	289.9	353.4

In addition to the volume of sawlogs produced from New York's timber supply and sawed into lumber by local sawmills, about 12.6 million board feet of sawlogs were brought into the State. Adjacent states drew upon New York's forests for 8.6 million board feet of sawlogs to help supply their own sawmills.

Roundwood Pulpwood Production Is Down Slightly

Pulpwood cut within the State in 1967 supplied its 16 pulpmills with 394 thousand cords of roundwood as compared to the 411 thousand cords supplied to about twice that number of pulpmills in 1952 (fig. 18). One-third of the 1967 production was from the softwood species—74 thousand cords of spruce and fir, 42 thousand cords of pine, and 16 thousand cords of other softwoods (*8*). In 1952 softwoods made up 85 percent of the pulpwood produced. The hardwood pulpwood production in 1967 totaled 262 thousand cords and was made up of 14 thousand cords of aspen and yellow-poplar, 14 thousand cords of oaks and hickory, and 234 thousand cords of other hardwoods, principally the maples, birches, elm, and beech.

Nine of the 16 pulpmills are located in the Northern Region of the State. Seventy percent of the pulpwood was produced in this Northern Region. Softwoods made up only 11 percent of the pulpwood production in the Southeastern Region and 44

Figure 18.—Debarked pulpwood ready for delivery to one of the 16 pulpmills in New York.

New York Conservation Dep. Photo

percent in the Southwestern Region as indicated by the following data, in thousands of cords:

Region	*Softwoods*	*Hardwoods*	*Total*
Southwestern	26.0	32.7	58.7
Northern	100.1	174.7	274.8
Southeastern	6.5	54.3	60.8
State	132.6	261.7	394.3

Total output of pulpwood in 1967 amounted to 463 thousand cords, including 69 thousand cords from plant byproducts (cordwood equivalent of 5.5 million cubic feet from this source) (fig. 19). The pulpwood production from plant byproducts in 1952 was only 2,600 cords, making the total output of pulpwood volume 413 thousand cords, about 50,000 cords less than in 1967.

A small part of the pulpwood production, 4,600 cords, was used by out-of-state pulpmills. A much larger volume—188

Figure 19.—About 15 percent of the pulpwood volume came from mill byproducts like these slabs and edgings.

New York Conservation Dep. Photo

thousand cords—was brought in from other states and Canada to meet the annual needs of New York's pulpmills. Pulpwood receipts from within the State made up only 27 percent of the total in 1950 (*1*), 40 percent in 1952, and 67 percent in 1967. If this trend holds for the next 10 years, New York's forests should provide 75 percent of the pulpwood volume needed by the pulpmills in 1977.

Veneer Log and Bolt Production Increased

Veneer log and bolt production for 1967 was 22.1 million board feet (all of it hardwood). This was an increase of 3 million board feet over the production for 1952 even though the number of veneer mills decreased from 29 to 12. Veneer mills producing basket veneer decreased from 14 to only 3 in 1967. Veneer mills producing face veneer for plywood decreased from 15 to 9. Eight of the State's veneer mills are located in the Southwestern Region.

In addition to the veneer logs and bolts produced within the State, about 3.2 million board feet of such raw material was brought in from other states. About 1.5 million board feet of veneer logs and bolts were shipped out of the State. The net effect of these movements was that 23.7 million board feet were used by the veneer mills in New York State in 1967.

Veneer log and bolt production came principally from 15 hardwood species, yellow birch making up more than one-fifth of the total (4.8 million board feet) (*3*). The principal species and their ranking according to volume of production are listed below, in million board feet:

Species	*Log and bolt production*	*Percent*
Yellow birch	4.8	22
Elm	3.4	15
Red oak	3.4	15
Hard maple	3.1	14
Black oak	2.1	10
Beech	1.8	8
Basswood	1.1	5
Other hardwoods	2.4	11
All species	22.1	100

Output of Other Primary Wood Products Decreased

Production in the less important primary wood-using manufacturing industries—poles, posts, and bolts for other products—accounted for 7 percent (6.9 million cubic feet) of the output of industrial roundwood products. This 1967 output was 0.8 million cubic feet less than the output in 1952. Hardwoods made up 92 percent of the volume used for these minor products (fig. 20). Softwoods made up the other 8 percent, used mainly for poles and posts.

Scattered throughout the State are 20 mills or primary plants that process the raw material for the various products shown below:

Kind of mill or plant	*Number of mills or plants*
Splitting, bolter, ladder, and bats	9
Handle	5
Post and pole (only the largest plants)	4
Flakeboard and excelsior	2

Figure 20.—One of the minor products: white birch bolts being sawed into turning squares.

USFS - 477125

One kind of mill included in the first class shown above manufactures baseball bats. Classified as sporting and athletic goods manufacturing, this industry in New York in 1954 used about 12.7 million board feet of lumber, logs, and bolts, of which 10.2 million board feet came from within the State (*4*). White ash made up 43 percent, hard maple 57 percent, and other species less than 1 percent of the volume used. Products manufactured include baseball bats (from ash) and bowling pins (from hard maple), which accounted for 85 percent of the volume used; and other products—such as tennis rackets, skis, and hockey sticks—accounted for 15 percent.

Baseball bats require high-quality ash. Ash logs are sawed into 40-inch bolts. The best bolts are split and the pieces are rough-turned into billets 3⅛ inch in diameter (fig. 21). These rough-turned and sawed billets (2½ inches square) are seasoned and then turned into baseball bats. A major league baseball team will use about 400 bats a year, but many thousands of bats are given away. For example, the New York Yankees gives away an average of 60,000 Little League baseball bats a year.

VALUES ADDED BY INDUSTRIES

Value added is the difference between the cost of goods purchased and the value of products sold. The sum of values added attributed to timber is considered to represent that part of the gross national product originating in timber-based economic activities.

The economic importance of timber is much greater in the secondary-manufacturing, construction, and transportation and marketing industries than in the primary manufacturing industries. Dwight Hair pointed out that, in 1958, timber in the United States increased in value 25 times between the stump and the delivery of finished products (*6*). The total value added to $1 worth of stumpage cut through the harvesting and primary manufacturing phase was $5.35; and through the secondary-manufacturing, construction, and transportation and marketing phase, $18.40 more was added. However, in New York the industries

Figure 21.—High-quality white ash is required for making baseball bats. A, logs are sawed into 40-inch bolts. B, the bolts are split for rough turning. C, bat billets ready for kiln-drying. D, Bat Day at Yankee Stadium.

BOB OLEN PHOTO

in the latter groups are far less dependent on the State's timber resource than the primary manufacturing industries are.

Secondary manufacturing, construction, and transportation and marketing industries in New York State employed in 1967 the equivalent of 1.3 million employees, of which the employment of 290,000 was attributed to timber. The value added to the annual gross national product attributed to timber in these industries totaled about 2.9 billion dollars, or about 10,000 dollars per employee. Each of the above three industries accounted for roughly one-third of the value added as shown below:

	Value added attributed to timber	
	(*thousand dollars*)	(*percent*)
Secondary manufacturing	999,300	34
Construction	858,000	29
Transportation and marketing	1,083,000	37
Total	2,940,300	100

Secondary Manufacturing Industries

Intermediate products such as dissolving grade of woodpulp, much of the paper and paperboard, and substantial quantities of lumber, veneer, and plywood are further manufactured into containers, furniture, wearing apparel (rayon), and other consumer goods. The estimate of value added attributed to timber in six secondary manufacturing industries was based primarily on the cost of timber products consumed. This in turn was related to employment and employment attributed to timber.

Value added attributed to timber in the selected secondary manufacturing industries in New York for 1967 totaled 999 million dollars. This estimate is based upon employment as given in *County Business Patterns* (*17*), employment attributable to timber by Dwight Hair (*6*), and values added as given in the *Statistical Abstract* (*15*). Value added by manufacture increased 45 percent in the 15-year period between 1952 and 1967.

The manufacturing industry codes used by the Bureau of the Census are shown for the major timber-based industries in table 90.

The paper and paperboard industry accounted for more than one-half ($504 million) of the total value added attributed to timber for the six industry groups. The value added attributed to timber in the fibers, plastics, and textile industries ranked second, with $343 million, and made up more than one-third of the total. Values added attributed to timber per employee ranged from $7,100 in the wooden containers industry to $14,300 in the paper and paperboard industry as shown below:

Secondary-Manufacturing Industry	Value added attributed to timber: Total ($1,000)	Value added attributed to timber: Dollars per employee
Paper and paperboard products	503,930	14,251
Selected industries for fibers, plastics, and textiles	343,109	8,623
Furniture and fixtures, excluding those of metal	79,817	9,294
Millwork and prefabricated wood products	26,231	9,108
Wooden containers	6,653	7,063
All other wood-using industries	39,609	8,935
Total	999,349	10,863

The Construction Industry

It has been estimated that 100 percent of all the poles and piling, about 75 percent of all lumber and softwood plywood, 10 percent of the paper and paperboard, and significant quantities of other timber products in the United States are used in the construction industry (*6*).

Construction includes the erection and maintenance of structures such as buildings, docks, bridges, railways, and utilities such as electric power lines, telephone lines, and sewers. Expenditures for new construction make up about three-fourths and repairs make up one-fourth of the total spent on construction (*15*).

Construction contracts for new construction in New York State for 1967 was reported to be 3.9 billion dollars, but this was increased to 5.2 billion dollars for total construction, using the same ratio as for the United States total (*15*). Expenditures for construction include the cost of brick, concrete, steel, and other intermediate products purchased from other sectors of the economy. These costs represented about 43 percent of the total expenditures in 1958 and were deducted to get value added in construction.

For the construction industry there are no published Bureau of the Census data on value added. Estimates of total value added were derived by Hair (*6*) from the limited data available. The estimates are less accurate than for the secondary manufacturing

industries and are subject to a considerable margin of error because of gaps in the data on employment and the indirect method used in computing value added.

Lumber, plywood, and building board accounted for about 20 percent of the cost of materials used in construction in 1958. It was assumed that the value added attributed to timber could be allocated in proportion to cost of materials used. In New York State the derived value added attributed to timber was 16.5 percent of the combined value of new construction and maintenance and repair in 1958. This percentage was applied to the estimated combined value for construction and maintenance for 1967 (*15*). The value added attributed to timber was estimated to be 858 million dollars, an increase of 7 percent over the corresponding value for 1958.

The Transportation And Marketing Industries

Transportation of raw materials such as logs and related products from local points of delivery to manufacturing plants or consumers, transportation of manufactured products from plants to consumers, and the marketing of these products through wholesale and retail channels make up the transportation and marketing industry. For these industries, as well as for the construction industry, there were no Bureau of the Census data on value added.

Total value added attributed to timber in the transportation and marketing industry in New York was 1.1 billion dollars in 1967—42 percent of this in the wholesale trade, 36 percent in the retail trade, and 22 percent in transportation. Only relatively small parts of the economic activities in transportation and marketing were based on timber products. These products accounted for about 5 percent of the total freight revenue in water transportation, 10 percent in motor-truck transportation, and 13 percent in railroad transportation. Sales of timber products accounted for 6 percent of the wholesale trade and 4 percent of the retail trade total sales (*6*).

Data on operating revenues for the transportation industry

were not yet available for 1967, but such data from previous years were used to calculate an average annual increase in operating revenues (*15*). The annual rate of increase attributed to timber in this industry was 4.3 percent. The value added attributed to timber in the transportation industry in 1958 increased 39 percent to 238 million dollars in 1967.

Retail trade sales increased 56 percent, and wholesale trade sales increased 67 percent between 1958 and 1967 (*15*). Assuming that the value added attributed to timber in these industries increased at the same rates, the estimates of value added attributed to timber in the wholesale trade in 1967 is 449 million dollars and in the retail trade is 396 million dollars.

DEMAND VERSUS SUPPLY

Population in New York State increased 20 percent since 1952, to 18.3 million people in 1967 (*15*). By coincidence, New York's timber supply kept pace with the population and also increased 20 percent. However, per-capita industrial roundwood consumption (based upon national data) dropped about 10 percent to the equivalent of 59 cubic feet (7).

People in New York State consumed the equivalent of 1.1 billion cubic feet of industrial roundwood in 1967. This is more than ten times greater than the output of industrial products (101 million cubic feet) from the forests within the State. The consumption was in the form of new house construction, furniture, newspapers, and other commodities that are of wood or partially made from wood.

Primary wood-using manufacturing industries get most of their roundwood supply from within the State—97 percent of the sawlogs, 86 percent of the veneer logs and bolts, 67 percent of the pulpwood bolts, and about 100 percent of the other industrial wood. The secondary wood-using manufacturing, construction, and transportation and marketing industries depend mainly on out-of-state timber products such as lumber, plywood, and veneer.

More than one-half of the total wood consumed by industries in New York originated as sawlogs. One-third of the consumption originated as pulpwood bolts, and about 15 percent originated

as veneer logs and other wood products. The volume equivalent for this industrial roundwood consumption is shown below:

	Volume (million cubic feet)
Sawlogs	569
Pulpwood bolts	357
Veneer logs	108
Other	46
Total	1,080

Seventy percent of the wood consumption in New York State was from the softwood species—in sharp contrast to the softwood component of the forest inventory volume, in which softwoods made up 26 percent of the total.

One primary wood-using industry of particular interest in New York State is the paper and paperboard mills, which numbered 102 in 1952 and produced 1.7 million tons of paper and paperboard that year. Some have gone out of production. In 1967 *County Business Patterns for New York* (*17*) showed 74 such mills, and it was estimated that they produced 2.0 million tons in 1967.

Newsprint in 1952 made up at most only 223,000 tons of the paper produced within the State. This is less than 60 percent of the yearly tonnage required by the New York Times alone, which used 384,000 tons in 1968 (fig. 22). Most of the newsprint

Figure 22.—Rolls of newsprint—some of the 8,500 rolls used per week by The New York Times—ready to go into the presses.

New York Times Photo

needed by the 507 newspapers in the State is purchased from paper mills in Maine and Canada and other countries. No newsprint has been produced in New York State since 1957.

The Future Timber Supply

TIMBER SUPPLY OUTLOOK

THE ESTIMATES compiled for the initial survey and the resurvey make it obvious that the inventory of timber in New York State will increase considerably unless an unforeseen large increase in timber removal takes place. The average net annual growth of growing stock between surveys was 246 million cubic feet while the average annual removal was only 134 million cubic feet.

The uncertainties of the future can upset long-range predictions of timber cut and associated estimates of timber growth and inventory, unless the assumptions that are made hold true for the entire period. Regardless of the assumptions we make, it appears that timber can be cut at a much higher rate than it was cut between surveys, especially in the 10-year period ending in 1978.

The following assumptions were made: (1) farmland will be abandoned at a decreasing rate, and the acreage that reverts to forest land will be about equal to the acreage of forest land converted to nonforest by land clearing; (2) growth rates based upon the average net annual growth between surveys will continue to be the same for the next 30 years; and (3) trends in forestry programs such as those under the New York Forest Practice Act of 1946 (*13*) will continue at the same rate as in the past.

Timber available for cutting can be assumed to be that amount that will bring net annual growth and timber removal from the present inventory into balance at the end of 30 years (fig. 23). The growing-stock inventory volume will level off at about 14.5 billion cubic feet. From the curve of past and future timber removal and the projection ahead for 30 years, the following

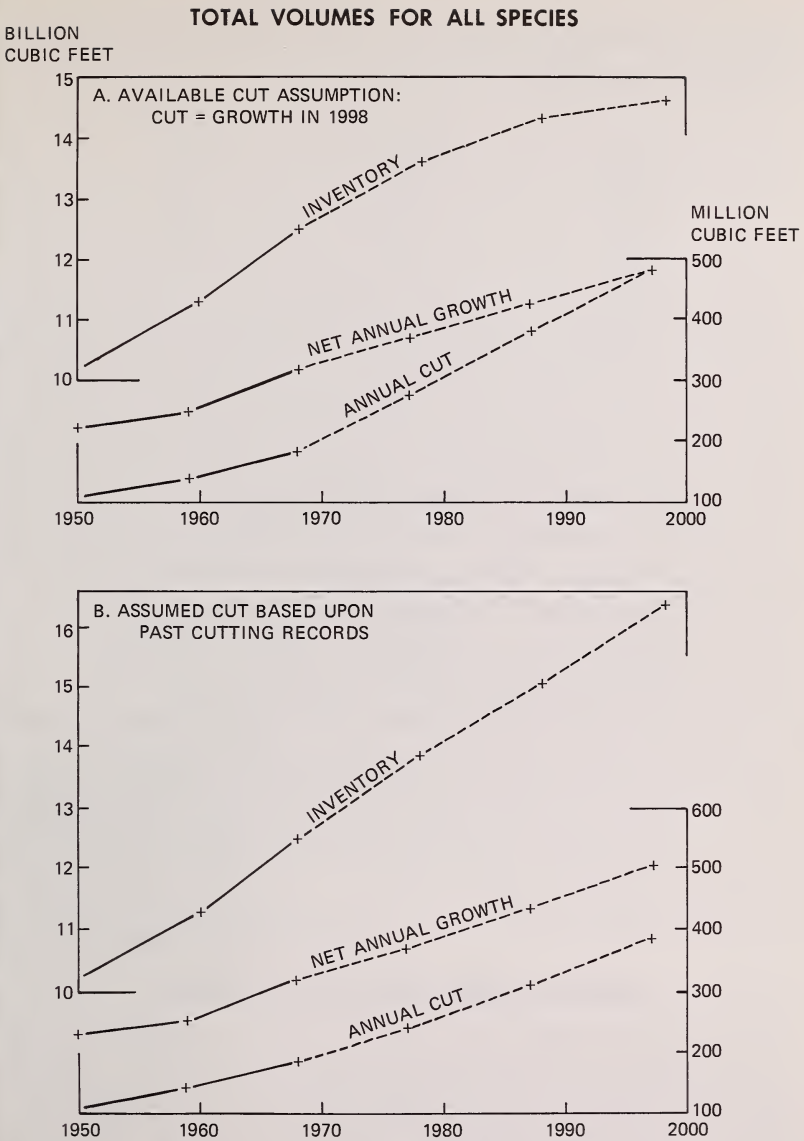

Figure 23.—Annual cut of growing stock can be increased without decreasing the inventory.

tabulation shows for specified years the annual growth and the available cut, in millions of cubic feet:

Year	*Annual growth*	*Available cut*
1968	321	185
1978	371	276
1988	427	379
1998	478	478

Unless timber cutting is greatly accelerated, net annual growth and annual removal will not come into balance at the end of the 30-year period. If we assume that hardwoods will continue to be cut at the same rate and that softwoods will be cut at a faster rate than in the past, the inventory in 1999 will be more than 16 billion cubic feet. The assumption for the increased cut of softwoods is based upon data that show that the estimate of timber removals for 1967 is greater than for 1964 even though the trend curve sloped downward from 1952 to 1967.

Sawtimber projections, based upon cutting rates to bring and hold the cut of growing stock to about 478 million cubic feet by 1998, show that the board-foot volume inventory will increase slowly for the next 10 years but will decrease for the rest of the period to about 20 billion board feet. However, if the present rate of cutting continues, the board-foot volume inventory will increase for the next 20 years and then decrease slightly to 24.5 billion board feet in 1999.

MANAGEMENT OPPORTUNITIES

Armstrong and Bjorkbom stated in the first timber-resource report for New York (*1*) that land rehabilitation was one major problem and that rehabilitation of the timber resource was the other major problem. The findings of the resurvey show that the same problems exist, and they can be restated as follows: (1) the stocking of growing-stock trees is inadequate over much of the forest area, (2) the stocking of desirable trees is extremely poor, and (3) timber quality is becoming worse.

Large acreages of farmland are being abandoned each year as crops fail to bring in sufficient financial returns for the owners.

If abandoned or idle cropland is near a tree seed source, the land will revert to a forest tree cover in time. If the seed source is inadequate, future income from timber products may be delayed for an unreasonably long time. The problem is how to bring this kind of land back into forest productivity within a reasonable time for the benefit of the owner and the community.

An estimate independent of the forest-survey estimate of nonstocked forest land can be derived from the Censuses of Agriculture. The 1949 Census of Agriculture for New York reported 125,000 farms in the State (*14*). These farms had 8.5 million acres of cropland and 3.1 million of pasture (excluding cropland and woodland used for pasture). Together they made up 11.6 million acres of open land. Decreases between censuses in the number of farms and in open-land acreage are shown below:

	Number of farms	*Thousand acres*
1949-54	19,300	682.5
1954-59	23,400	1,341.6
1959-64	15,800	814.7
15-year decrease	58,500	2,838.8

Based upon the Census of Agriculture data alone, there are probably more than a million acres of idle or abandoned cropland that will not produce revenue for years to come.

Tree Stocking Is Inadequate On One-Third of the Area

The forest-survey data for 1968 show that 1.3 million acres of forest land are nonstocked and 3.8 million acres of forest land are poorly stocked. Nonstocked forest land had increased 0.3 million acres and poorly stocked forest land had increased 3.0 million acres between surveys. Probably much of the increase came from the abandoned farm cropland. However, this large increase in acreage of nonstocked and poorly stocked forest land emphasizes the problem of inadequate stocking on forest land.

Private individuals and businesses own a total of 1.2 million acres of forest land that are nonstocked. Public ownerships (mostly state) account for more than 70,000 acres of nonstocked forest land, of which 5,000 acres are estimated to be plantable.

Some of this publicly owned forest land will probably be planted as funds are made available. But the bigger concern is for the acreage of nonstocked privately owned forest land, which is 17 times greater than the publicly owned land.

Extensive areas of state-owned submarginal farmland acquired under authorization by a state constitutional amendment were planted between 1931 and 1952—the equivalent of 285,000 acres (*1*). About 179,000 more acres of plantations were established on private land. County and municipal lands totaling 68,000 acres were also planted. More than 500,000 acres of plantations were established between 1902 (when the first forest tree nursery was established by the State) and 1952. Our resurvey recognized timber stands that originated as plantations; and the total acreage of existing plantations is now estimated to be 564,000 acres. Although the acreage of plantations in New York State may seem large, it is much less than the acreage of open farmland in New York that has been abandoned, for any 5-year period between recent censuses of agriculture.

The New York State Conservation Department now has two tree nurseries to provide seedlings to landowners for planting their idle land. In recent years most of the planting in the State has been on private land. Although planting varies from year to year, an average of about 20,000 acres are being planted to seedlings each year. The trend is toward wider spacing between planted seedlings, such as 8 by 8 feet (*16*). This reduces initial costs, but requires weevil control (for white pine), properly timed pruning, and probably some thinning to produce quality pine.

Hand-planting of seedlings can be done at a rate of about 800 seedlings per man-day, depending upon soil conditions, location, and presence of other growth. Hand-planting is the only means of planting some areas such as steep and rocky slopes. Much of the land that had formerly been cultivated for crops is suitable for machine-planting of seedlings. Machine-planting is a more economical method and costs about 20 to 25 dollars per acre. Up to 10,000 seedlings can be machine-planted per day under favorable ground conditions (*16*).

Desirable Tree Stocking Is Extremely Poor

Only 1 percent of the commercial forest land (150,000 acres) in New York State is 40 percent or more stocked (medium stocking) with desirable trees that are defined as vigorous trees that have no serious defects in quality (fig. 24). (See Appendix for complete definition of desirable trees.) Nearly 20 percent of the forest land (2.8 million acres) is 10 to 40 percent stocked (poorly stocked) with desirable trees. The remaining 80 percent (11.4 million acres) is less than 10 percent stocked with desirable trees.

About one-fifth (2.7 million acres)of the forest land that is less than 40 percent stocked (poorly stocked) with desirable trees is fully stocked with growing-stock trees. The areas of forest land that are both poorly stocked with desirable trees

Figure 24.—Good stocking of desirable trees such as these was found on only 1 percent of the commercial forest land area.

New York Conservation Dep. Photo

and poorly stocked with growing-stock trees make up more than one-third (5.1 million acres) of the commercial forest land.

Past cutting operations have downgraded the growing stock in New York State. Most of the old-growth stands to be managed as an uneven-aged forest need a thorough renovating when management is started. Because there are so many poor growing-stock trees, the first cut (primarily for presalvage and improvement) should be moderately heavy—a cut of 25 to 40 percent of the gross volume in trees 5.0 inches d.b.h. and larger (*5*). Rough and rotten trees and wolf trees should be removed at the time of the cutting or immediately after by felling, girdling, or treating with silvicides. The single-tree selection system of cutting will perpetuate or increase the proportions of the very tolerant species —sugar maple, beech, hemlock, and red spruce.

Timber Quality is Decreasing

About every fourth tree (5.0 inches d.b.h. and larger) in the average timber stand is either too rough or too rotten to be classed as a growing-stock tree. Scattered throughout the forests are 83 million softwood trees and 418 million hardwood trees that cannot be classed as growing stock. These trees account for more than 15 percent of the sound-wood volume of all live trees on commercial forest land. They compete for growing space and lower the potential yield of usable timber per acre.

Timber quality in sawtimber trees—as expressed by standard-lumber log grades—is generally poor. Sawtimber trees have a relatively small volume in grade-1 sawlogs. Less than 2 percent of the pine board-foot volume falls into grade 1, which is about the same as for the initial forest survey. Nearly 15 percent of the hardwood board-foot volume falls into grade 1. In 1950 almost 30 percent of the hardwood volume was classified in this grade. Timber-stand improvement is needed to reverse this downward trend for hardwoods and to increase the quality of softwoods.

Timber-stand improvement can start in young stands of timber. Cleanings should begin when the trees are head high, no more than 10 years of age; thinnings should begin as soon as crop trees can be recognized (*5*). Cleaning is an operation in which

the undesirable members of sapling-and-seedling stands are removed, such as unmerchantable or low-value species, forked or crooked trees, and stump sprouts. Tree thinning is the removal of only the trees that are interfering with the crown development of the crop trees.

White pine and red pine timber quality can be improved by artificial pruning at an early age (*16*). Considerable research has been done in the pruning of white pine and has resulted in the following important guides: (1) for quality growth alone, frequent light prunings are preferred over a single heavy pruning; (2) between one-third and one-half of the live crown can safely be removed in pruning without loss of growth, provided this leaves a live crown at least one-third of the total stem length; (3) pruning should be done in the dormant season for best healing; (4) live branches over 2 inches in diameter should not be pruned because of the high cost and slow healing rate; (5) trees usually should not be pruned higher than the first sawlog (17 feet) because of the greater cost; and (6) the number of trees to be pruned should at least equal the number expected to make up the stand when mature.

Most Landowners Show Interest in Their Woodlands

One of the principal findings of a recent ownership study revealed that owners of about 80 percent of the commercial forest land in the State have some kind of interest in the management of their woodland for timber products. This study, which was tied into the forest-survey field plots throughout the State, was made in 1967 and 1968 to shed some light on owners' attitudes about their forest land.

Personal interviews were made with 350 landowners. They were chosen at random from 4,834 forest sample plots. The findings showed that 14 percent of the commercial forest land is owned by retired people and that about one-third of the forestland acreage was acquired with other property for permanent or part-time residence.

Other findings of this study showed that owners of more than

20 percent of the commercial forest-land area in the State had no interest, or were indifferent, at time of purchase as to whether part of the property was forested. Owners of another 20 percent of the forest land were interested in selling timber products. Another group of owners, holding 18 percent of the forest land, were interested in timber products for home use. Owners of the remaining 40 percent of commercial forest land were more interested in other uses for their forest land—such as scenic values, hunting, other outdoor activities, and wildlife production and protection.

The owners were questioned about their preference of a method for selecting trees to be cut from their land. Owners of about two-thirds of the commercial forest land in the State preferred individual-tree selection, in which trees to be cut are selected and marked by the owner or his agent. The implication from this finding is that considerably more forest acreage could be brought into the cooperative program of the Forest Practice Act (*13*).

In summary, it appears that owners who together possess more than three-fourths of the commercial forest land in the State are interested in forest management and that most of these owners prefer their trees to be selected and marked before cutting. These landowners include cooperators or potential cooperators with the New York State Conservation Department under the terms of the Forest Practice Act.

The Forest Practice Act Sets Minimum Standards

The New York State Conservation Department has long recognized that landowners need help in forest management. At first the Department established a tree nursery to provide the means for re-establishing forests on idle land. Forest protection from fires, insects, and disease was needed; and the Department initiated control over them.

In 1946 the Forest Practice Act was enacted into law by the State. This Act provides for: (1) the setting up of definite standards for the practice of forestry on privately owned wood-

lands in the State; and (2) assistance from the State Conservation Department in carrying out these practices. The purpose of this voluntary cooperative program is to encourage forest landowners to weed, thin, or prune their timber stands to produce timber of better quality and to harvest their timber according to good forest practices.

More than 1 million acres of forest land owned by about 5,000 persons were being managed in 1952 under the Forest Practice Act. In 1968, the forest area under management had enlarged to 1.8 million acres, owned by about 9,500 cooperators.

Any woodland owner who becomes a cooperator agrees to comply with thirteen basic principles of the Forest Practice Act applicable to existing woodlands and nonforest lands for planting, protection, and harvesting. In addition to the basic principles, this Act gives the minimum cutting practice standards—based upon age, site, quality, and condition of the stand.

Under the terms of the Forest Practice Act, 14 operational forest districts were created in the State. A technically trained forester (a district director, Division of Lands and Forests) is in charge of each forest district. He is responsible for the forestry activities in his district, and he directs the service work for woodland owners within his district.

The services to the woodland owner include but are not limited to: (1) marking timber and marketing assistance; (2) reforestation guidance; and (3) recommendations for timber-stand-improvement operations in immature stands. The landowner can obtain these services through the State Conservation Department in Albany. A district director will arrange for a meeting to explain the forest practice standards. If a mutual understanding is reached, the woodland owner signs a cooperative agreement and agrees to abide by the forest practice standards recommended.

To summarize the benefits of the Act: the private woodland owner is encouraged to practice good forestry through the services of foresters from the Conservation Department. The district director will recommend practices that will give the owner the best returns from his woods and at the same time keep the woods productive. All management goals must be consistent with the

characteristics of the species, the sites upon which they grow, and the systems of silviculture for which they are suited (*5*).

The objectives of the Forest Practice Act need greatly increased public attention, and more woodland owners need to become active cooperators if an improvement of the generally poor forest conditions is to be accomplished. District directors are available for assistance and guidance to help the woodland owner-cooperator obtain the goals of better management, greater productivity, better quality, and higher financial returns.

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Appendix

DEFINITION OF TERMS

Land Area Classes

Land area.—(a) **Bureau of the Census.** The area of dry land and land that is temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals that are less than 1/8 statute mile in width; and lakes, reservoirs, and ponds that are less than 40 acres in area. (b) **Forest Survey.** The same as the Bureau of the Census, except that the minimum width of streams, etc., is 120 feet, and the minimum size of lakes, etc., is 1 acre.

Forest land.—Land that is at least 16.7 percent stocked (contains at least 7.5 square feet of basal area) by forest trees of any size, or that formerly had such tree cover and is not currently developed for nonforest use. (Forest trees are woody plants that have a well-developed stem and usually are more than 12 feet in height at maturity.)

Commercial forest land.—Forest land that is producing or capable of producing crops of industrial wood and is not withdrawn from timber utilization. (Industrial wood: all roundwood products, except fuelwood.)

Noncommercial forest land.—Forest land that is incapable of yielding timber crops because of adverse site conditions (unproductive forest land), and productive forest land that is withdrawn from commercial timber use (productive-reserved forest land).

Productive-reserved forest land.—Forest land that is sufficiently productive to qualify as commercial forest land, but is withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas-tree production.

Unproductive forest land.—Forest land that is incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Nonforest land.—Land that has never supported forests; and land formerly forested but now in nonforest use such as for crops, improved pasture, residential areas, and the like.

Ownership Classes

National Forest.—Federal lands that have been legally designated as National Forests or purchase units, and other lands that are under the administration of the Forest Service. There are none in New York.

Other Federal.—Federal lands (other than National Forests) that are administered by other Federal agencies.

State.—Lands that are owned by the State of New York or leased to the State for 50 years or more.

County and municipal.—Lands that are owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Forest industry.—Lands that are owned by companies or individuals operating wood-using plants.

Farmer-owned.—Lands that are owned by farm operators. Excludes land leased by farm operators from nonfarm owners.

Miscellaneous private.—Privately owned lands other than forest-industry and farmer-owned lands.

Stand-Size Classes

Stand.—A growth of trees on a minimum of 1 acre of forest land that is at least 16.7 percent stocked by forest trees of any size.

Sawtimber stands.—Stands that are at least 16.7 percent stocked with growing-stock trees (see definitions under "Tree Classes"), with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.—Stands that are at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and/or sawtimber trees and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.—Stands that are at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and/or seedlings.

Nonstocked areas.—Commercial forest land that is less than 16.7 percent stocked with growing-stock trees.

Stocking Classes

Stocking.—The degree of occupancy of land by trees, measured in terms of basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to utilize fully the growth potential of the land. The actual stocking at a point was evaluated against a standard of 75 square feet of basal area per acre. The stocking percentage for a sample plot is derived from the stocking for each of 10 points. Three categories of stocking are used:

All live trees.—These are used in the classification of forest land and forest types.

Growing-stock trees.—These are used in the classification of stand-size classes.

Desirable trees.—These are used in the classification of area-condition classes.

The degree of plot stocking is viewed as a *range* of values rather than single points. A fully stocked stand lies within the range of 100 to 133 percent of the basal-area standard. An overstocked stand contains more than 133 percent. The range for medium stocking is 60 to 100 percent and for poor stocking is 16.7 to 60 percent of the basal-area standard. Forest land with less than 16.7 percent of the basal-area standard is classed as nonstocked.

Tree Classes

Growing-stock trees.—Live trees of commercial species that are classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees. (See definitions under "Class of Timber.")

Acceptable trees.—Growing-stock trees of commercial species that meet specified standards of size and quality, but do not qualify as desirable trees.

Desirable trees.—Growing-stock trees of commercial species (a) that have no serious quality defects that limit present or prospective use for timber products, (b) that are of relatively high vigor, and (c) that contains no pathogens that may result in death or serious deterioration before rotation age.

Rotten trees.—Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and do not meet regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume in a tree is rotten.

Rough trees.—(1) The same as above, except that rough trees do not meet regional specifications for freedom from defect primarily because of roughness or poor form, and (2) all live trees that are of noncommercial species.

Site Quality Classes

Site class.—A classification of forest land in terms of inherent capacity to grow crops of industrial wood. Classifications are based upon the mean annual growth of growing stock attainable in fully stocked natural stands at culmination of mean annual growth.

Forest Types

The forest-type classification of each sample plot is based upon the species that make up a plurality of live-tree stocking. The many local forest types were combined into the following major forest types.

White pine-red pine-hemlock.—Forests in which eastern white pine, red pine, or hemlock, singly or in combination, make up a plurality of the stocking. (Common associates include aspen, birch, and maple.)

Spruce-fir.—Forests in which spruce or true firs, singly or in combination, make up a plurality of the stocking. (Common associates include white-cedar, tamarack, maple, birch, and hemlock.)

Oak-pine.—Forests in which hardwoods (usually upland oaks) make up a plurality of the stocking, but in which pines make up 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.—Forests in which upland oaks or hickory, singly or in combination, make up a plurality of the stocking, except where pines make up 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum.—Bottomland forests in which blackgum, sweetgum, or oaks, singly or in combination, make up a plurality of the stocking, except where pines make up 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-red maple.—Forests in which elm, ash, or red maple, singly or in combination, make up a plurality of the stocking. (Common associates include willow, sycamore, beech, and cottonwood.)

Maple-beech-birch.—Forests in which sugar maple, beech, or yellow birch, singly or in combination, make up a plurality of the stocking. (Common associates include hemlock, elm, basswood, and white pine.)

Aspen-birch.—Forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking. (Common associates include maple and balsam fir.)

Class of Timber

Softwoods.—Coniferous trees that are usually evergreen, having needles or scalelike leaves.

Hardwoods.—Dicotyledonous trees that are usually broad-leaved and deciduous.

Sawtimber trees.—Live trees of commercial species, (a) that are of the following minimum diameters at breast height—softwoods 9.0 inches and hardwoods 11.0 inches, and (b) that contain at least one 12-foot merchantable sawlog and meet regional specifications for freedom from defect.

Poletimber trees.—Live trees of commercial species that meet regional specifications of soundness and form, and are at least 5.0 inches in d.b.h. but are smaller than sawtimber size.

Saplings.—Live trees of commercial species that are 1.0 to 5.0 inches in diameter at breast height and of good form and vigor.

Seedlings.—Live trees of commercial species that are less than 1.0 inch in diameter at breast height and are expected to survive.

Rough and rotten trees.—See definitions under "Tree Classes."

Timber Volume

Growing-stock volume.—Net volume, in cubic feet, of live growing-stock trees that are 5.0 inches d.b.h. and over, from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. Net volume equals gross volume less deduction for rot.

Standard cord.—A unit of measure for stacked bolts of wood encompassing 128 cubic feet of wood, bark, and air space. Cord estimates can be derived from cubic-foot estimates by applying an average factor of 80 cubic feet of wood (inside bark) per rough cord.

Sawtimber volume.—Net volume in board feet, International ¼-inch rule, of merchantable sawlogs in live sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Sawlog.—A log that meets minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight and with a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods. (See specifications under "Log Grade Classification.")

Sawlog portion.—That part of the bole of a sawtimber tree between the stump and the sawlog top (merchantable height).

Sawlog top.—The point on the bole of a sawtimber tree above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Log Grade Classification

Log grades are a classification of logs based on external characteristics as indicators of quality or value. The log-grade standards and grading systems for white pine, southern (yellow) pine, and hardwood used in this forest survey of New York are shown in the following figures:

WHITE PINE LOG GRADES

(Unpublished trial speifications, revised 1963)

Log grade	*Minimum size*		*Defect allowance*		*Maximum weevil injury*	*Allowable knot size (inches) on 3 best faces or minimum clearness on 4 faces*
	Diameter	*Length*[1]	*Sweep or crook*	*Total cull including sweep*		
	Inches	*Feet*	*Percent*	*Percent*	*Number*	*Inches*
No. 1	12 & 13	8–16	20	50	0	4 faces free of knots ½″ or larger full length of log.
	14+	10–16	20	50	0	2 faces free of knots ½″ or larger full length of log, or 4 faces free of knots ½″ or larger 50 percent length of log (6′ minimum length)[2]
No. 2	6+	8–16	30	50	0	Sound red knots ≦[3] D/6 and no larger than 3″. Black knots: Butt logs ≦ D/12 and no larger than 1½″. Upper logs ≦ D/10 and no larger than 1½″. or 4 faces free of knots ½″ or larger 50 percent length of log.
No. 3	6+	8–16	40	50	8′ logs: 1 weevil	Sound red knots ≦ D/3 and no larger than 5″.
					10′+logs: 2 weevils	Black knots ≦ D/6 and no larger than 2½″.
No. 4	6+	8–16	50	50	No limit	No limit.

[1] Plus trim.

[2] If the sum of the diameters of sound red knots plus 2X (sum of the diameters of dead or black knots) in inches is ≦ ½ the diameter of the log (in inches).

[3] ≦ means equal to or less than.

SOUTHERN PINE LOG GRADES

Grade factor	Grade			
	1	*2*	*3*	*4*
Minimum diameter	17″	10″	6″	6″
Maximum K value	1/5D	1/2D	None	None
Minimum specification on bad knots			Any bad knots present are localized in section not exceeding ¼″ circumference and length.	No limit

Exceptions

a. Lower one grade any log, not grade 4, having 3 inches or more of sweep if such sweep is ⅓ or more of log diameter.

b. Lower one grade any log, not grade 4, if heart-rot fruiting has occurred or is imminent, as indicated by conk or visible, massed, heart-rot hyphae.

K = number of overgrown knots plus sum of diameters of sound knots plus twice sum of diameters of unsound knots.

Bad knot: A knot with diameter > D/6, or an unsound knot (advance decay or a hole > ¼″ and 2″ or more deep).

Source: Forest Service Log Grades for Southern Pine. SE. Forest Exp. Sta., U.S. Forest Serv. Res. Paper SE-11, 1964.

Note: These log grades were applied to pitch pine in New York.

HARDWOOD FACTORY LUMBER LOG GRADES
(From U.S. Forest Products Laboratory Report D 1737)

GRADE FACTORS*		SPECIFICATIONS							
		Log Grade 1			Log Grade 2				Log Grade 3
Position in tree		Butts only	Butts & uppers		Butts & Uppers				Butts & uppers
Minimum diameter (inches)		13–15[1]	16–19	20+	11[2]		12+		8+
Minimum length (feet)		10+	10+	10+	10+	8–9	10–11	12+	8+
Clear cuttings** on each of the 3 best faces	Min. length (ft.)	7	5	3	3	3	3	3	2
	Max. number	2	2	2	2	2	2	3	—
	Min. yield in face length	5/6	5/6	5/6	2/3	3/4	2/3	2/3	1/2
Max. sweep and crook allowance (percent of gross volume)		15			30				50
Max. cull and sweep allowance (percent of gross volume)		40[3]			50[4]				50

* End defects, although not visible in standing trees, are important in grading cut logs. Instructions for dealing with this factor are contained in Forest Prod. Lab. Rpt. D 1737.

** A clear cutting is a portion of a face free of defects, extending the width of the face. A face is one-fourth the surface of the log as divided lengthwise.

[1] Ash and basswood butts can be 12 inches if otherwise meeting requirements for small No. 1's.

[2] 10-inch logs of all species can be No. 2 if otherwise meeting requirements for small No. 1's.

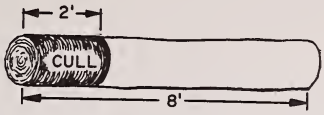
[3] Otherwise No. 1 logs with 41-50 percent cull can be No. 2.

[4] Otherwise No. 2 logs with 51-60 percent cull can be No. 3.

Source: A Guide to Hardwood Log Grading (pg. 11), NE. Forest Exp. Sta., Upper Darby, Pa. 1965.

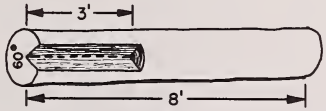
METHODS OF DETERMINING SCALING DEDUCTION

(Examples based on an 8-foot log with 20-inch scaling diameter)



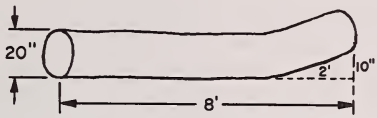
If section of bole is affected, deduct percent of log length affected.

Example: $\frac{2}{8}$ = 25 percent cull



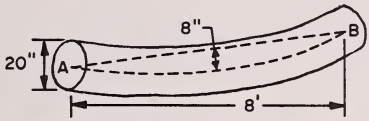
If sector is affected, multiply percent of circle times percent of length.

Example: $\frac{60°}{360°} \times \frac{3}{8}$ = 6 percent cull



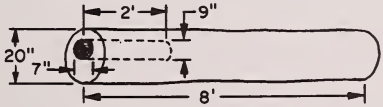
For a crook, multiply proportion of diameter displaced times proportion of log length affected by crook.*

Example: $\frac{10}{20} \times \frac{2}{8}$ = 12 percent board-foot cull



For a sweep, determine sweep departure and subtract 1 inch for 8-foot logs or 2 inches for 16-foot logs. Divide by log diameter.

Example: $\frac{8 - 1}{20}$ = 35 percent board-foot cull**



For interior cull, square out interior cull as a percent of total volume of the section. For board-foot cull, add 1 inch to width and to thickness; for cubic-foot cull, use actual dimensions of rot. For board-foot cull divide width and thickness by the scaling diameter (average d.i.b., small end) minus 1; for cubic-foot cull, divide by scaling diameter. Multiply fractions by percent of log affected.

Example: $\frac{8 \times 10}{20\text{-}1} \times \frac{2}{8}$ = 6 percent cubic-foot cull.

* No reduction of cubic-foot volume will be made.

** If a straight line between A and B falls outside the bark, the affected section is over 50 percent cull in board feet.

HARDWOOD CONSTRUCTION LOG SPECIFICATIONS

GRADE FACTORS		SPECIFICATIONS
Position in tree		Butts and uppers
Scaling diameter (inches)		8+
Length, without trim (feet)		8+
Clear cuttings		No requirements: not graded on cutting basis.
Max. sweep allowance		One-fourth d.i.b. of small end for half logs, and one-half d.i.b. for logs 16 feet long.
Sound surface defects permitted	Single knots	Any number, if none has an average collar* diameter that is more than one-third of log diameter at point of occurrence.
	Whorled knots	Any number, provided the sum of the collar diameters does not exceed one-third the log diameter at point of occurrence.
	Holes	Any number not exceeding knot specifications if they do not extend more than 3 inches into the contained tie or timber.
Unsound surface defects permitted**	Any number and size if they do not extend into contained tie or timber. If they extend into contained tie or timber, they shall not exceed size, number, and depth of limits for sound defects.	

* Knot collar is the average of the vertical and horizontal diameters of the limb or knot swelling as measured flush with the surface of the log.

** Interior defects are not visible in standing trees. They are considered in grading cut logs. No interior defects are permitted except one shake not more than one-third the width of the contained tie or timber, and one split not more than 5 inches long.

Source: A Guide to Hardwood Log Grading, (pg. 28), NE. Forest Exp. Sta., Upper Darby, Pa. 1965.

Net Annual Growth and Timber Removals

Average annual net growth of growing stock.—The change (resulting from natural causes) in volume of sound wood in sawtimber and poletimber trees during the period between surveys, divided by the length of the period. (Components of net annual growth of growing stock include the increment in net volume of trees present at the beginning of the period and surviving to its end, plus net volume of trees reaching poletimber size during the period, minus the net volume of trees that died during the period, minus the net volume of trees that became rough or rotten trees during the period.)

Average annual ingrowth of growing stock.—The net cubic-foot volume of trees now classed as growing stock that were not tallied as such on the initial survey, divided by the length of the period between surveys.

Average annual mortality of growing stock.—The net cubic-foot volume removed from the growing stock through death from natural causes during the period between surveys, divided by the length of the period.

Average annual growing-stock removals.—The net cubic-foot volume of live growing-stock trees harvested or killed in logging, cultural operations such as timber-stand improvement, land-clearing, or changes in land use during the period between surveys and converted to an annual basis.

Net annual growth of growing stock.—The increase in net cubic-foot volume of growing stock for a specific year (i.e., 1967 for New York) rather than for a period of years.

Annual removals of growing stock.—The net cubic-foot volume of live growing-stock trees removed from the inventory for a specific year (1967 for New York) by harvesting, killing, land-clearing, or changing of land use. Note: Softwood and hardwood removals for 1967 shown in table 17 were from a trend curve and were not exactly the same as the estimated removals for that year.

Average annual net growth of sawtimber.—The change (resulting from natural causes)in net board-foot volume of sawtimber during the period between surveys, divided by the length of the period. (Components of net annual growth of sawtimber include the increment in net volume of sawtimber trees present at the beginning of the period and surviving to its end, plus the net volume of trees reaching sawtimber size during the period, minus the net volume of sawtimber trees that died during the period, minus the net volume of sawtimber trees that became rough or rotten during the period.)

Average annual ingrowth of sawtimber.—The net board-foot volume of trees now classed as sawtimber that were not tallied as such on the initial survey, divided by the length of the period between surveys.

Average annual mortality of sawtimber.—The net board-foot volume removed from live sawtimber through death from natural causes during the period between surveys, divided by the length of the period.

Average annual sawtimber removals.—The net board-foot volume of live sawtimber trees harvested or killed in logging, cultural operations such as timber-stand improvement, land-clearing, or changes in land use during the period between surveys, converted to an annual basis.

Net annual growth of sawtimber.—The increase in net board-foot volume of sawtimber for a specific year (1967 for New York) rather than for a period of years.

Annual removals of sawtimber.—The net board-foot volume of live sawtimber trees removed from the inventory for a specific year (1967 for New York) by harvesting, killing, land-clearing, or changing of land use. Note: Softwood and hardwood removals for 1967 shown in table 18 were from a trend curve and were not exactly the same as the estimated removals for that year.

FOREST SURVEY METHODS

The Northeastern Forest Experiment Station's Forest Survey project used the sampling-with-partial-replacement (SPR) design in the re-inventory of New York's timber resource. This design estimates forest area and timber volume by combining a subsample of remeasured plots, a regression updating of the initial inventory, and a new independent photo and ground plot inventory. Thus the SPR design combined two independent inventories to obtain a better estimate of the timber resource.

One inventory was based on the updating of the initial survey (1950). This procedure required the remeasurement of a subsample of the initial inventory ground plots. With the area change and current volume estimates obtained from the remeasured sample plots, regression techniques were used to update all the initial ground and photo plots to obtain an estimate of current timber volume and forest area.

The second inventory was also based on a large photo-plot sample with a subsample of ground plots. For the second measurement, the most recent aerial photography coverage of New York was used. Photo plots were pinpointed on each photograph to provide a uniformly distributed sample of the area. Each photo plot was examined stereoscopically and classified as either forest or nonforest land. Those classified as forest plots were further stratified into cubic-foot-volume-per-acre classes. A subsample of these photo plots, which was selected to be proportional to the area in a photo class, was measured on the ground. From this ground measurement, estimates of the mean and variance of each photo class were obtained. These means were expanded by the photo strata area to yield an independent estimate of forest area and timber volume.

The final estimates of current forest area and timber volume were developed by combining the two independent inventories. The combination process consisted of weighting each estimate by the reciprocal of its variance and then adding them. The associated sampling error for this new estimate was also obtained. These combined totals were partitioned into the various categories of area and volume (e.g., volume by species and d.b.h. class) using the data obtained from the new ground-plot sample.

In addition to estimating current timber volume and forest area, the forest survey of New York was designed to obtain an estimate of the components of change during the period between the initial and the current inventories. The parameters of interest include area change from forest to nonforest and vice versa, timber growth, timber removals, and timber mortality. All this information was obtained from the remeasured plots.

The timber-change parameters were obtained by a tree-by-tree reconciliation of each remeasured plot. The reconciliation code for each remeasured tree was used to make estimates of the parameters of change, by species. The estimates of change were expressed as an annual figure by dividing the total for the period by the number of years between measurements.

Remeasured Plot Phase

The initial forest inventory of New York consisted of a large photo-plot sample plus a ground measurement of a subsample of these photo plots. The photo plots were stratified according to land use as forest or nonforest. The forest plots were further classified into stand-size classes. Nearly 2,716 ground plots were measured by field crews during this first inventory. These ground samples were 1/5-acre circular plots.

At this second measurement occasion, a sample of 967 of the initial ground plots—selected randomly within each initial photo-plot class—was revisited. These remeasured plots were distributed within the eight geographic units of New York as follows:

Lake Plain	– 108	Western Adirondack	– 102
Southwest Highlands	– 107	Eastern Adirondack	– 78
South-central Highlands	– 102	Capitol District	– 125
St. Lawrence-N. Adirondack	– 132	Catskill-Lower Hudson	– 213

The plot center was relocated for each remeasured plot. On those plots that were forested, all the trees on the 1/5-acre were tallied. The new tally was reconciled with the initial tally to account for every tree at both occasions.

New Ground Plot Phase

The source of the new independent estimates of volume and forest area was a new photo stratification with a subsample of ground measurements. The photo sample of New York consisted of 63,299 photo points on the latest available aerial photography. A subset of 3,867 of these photo plots was located on the ground. Land use was verified and tree-measurement data were recorded for the forest plots. Unlike the initial inventory, in which fixed-radius 1/5-acre plots were tallied, the new ground plots consisted of a cluster of 10 prism points systematically covering approximately 1 acre. At each point, trees were selected for tally by using a prism with a basal-factor of 37.5. Area-attribute data were also tallied at each of the 10 points.

The new ground plots in New York were distributed within the geographic strata as follows:

Lake Plain	– 729	Western Adirondack	– 368
Southwest Highlands	– 429	Eastern Adirondack	– 275
South-central Highlands	– 529	Capitol District	– 427
St. Lawrence-N. Adirondack	– 532	Catskill-Lower Hudson	– 578

County Data

Many users of forest-survey data have shown a need for county information. To provide such information, within the framework of the survey design, county tables have been developed based on a survey-unit partitioning technique. First the survey-unit means and variances for the various photo-plot strata were applied to the photo-plot data for each county within the survey unit. This yielded an estimate of total volume or total commercial forest land area for each county. Next, the data from all the new ground plots in the unit were used to partition the county totals into their various components. For example, if a table of cubic-foot volume by softwoods and hardwoods was to be made for a county, the estimate of total cubic-foot volume for that county was partitioned into softwood and hardwood totals according to the proportion of softwoods and hardwoods for all new forest-survey ground plots within the unit.

Comparisons Between Inventories

After inventories have been completed for several points in time, it is desirable to evaluate the trends between the several inventories and to make comparisons. A comparison of the 1968 and the 1950 forest-survey estimates of volume, growth, removals, and mortality was made for New York. A computer program TRAS (Timber Resource Analysis System) was used.

Since the survey-unit boundaries were different at the first occasion, no direct comparisons of published data can be made between units. Present plans call for the same units to be used for the third inventory as were used for the second inventory so comparisons between units will be possible at that time. The procedure for obtaining county data (See: "Forest Survey Methods") was different on the two surveys, so comparisons of area and volume for a county are subject to a procedural difference in the estimates as well as a sampling error.

The initial published estimates and the second estimates of volumes are not directly comparable for the State. One reason for this is a significant change in the procedure for classifying a growing-stock tree since the 1950 forest survey.

At the time of the original inventory, any tree with an 8-foot sawlog meeting grade requirements, or with the potential for producing such a sawlog, was classed as a growing-stock tree. The current definition of growing stock requires the tree to have now or potentially at least one 12-foot sawlog meeting grade requirements. This change has caused many trees, especially hardwoods, to be reclassified from growing stock to the rough and/or rotten category.

The inventory-volume estimates were recomputed for 1950 by using adjusted numbers of trees by 2-inch diameter classes (stand tables for softwood and hardwood species groups). The results of the recalculations of timber volumes for 1950 showed that the reported softwood growing-stock volume remained the same, but the reported sawtimber volume was about 10 percent too high. The recalculations also showed that the reported hardwood growing-stock volume was about 10 percent too high and the

reported hardwood sawtimber volume was about 15 percent too high. These recalculated estimates, not the published estimates, were the basis for the comparisons that are shown in this report.

RELIABILITY OF THE ESTIMATES

The forest-area and timber-volume data presented in this report are based upon a carefully designed sample of forest conditions throughout New York. However, since neither every acre nor every tree in the State was measured, the data presented in this report are estimates. A measure of the reliability of these estimates is given by a sampling error. An associated sampling error was calculated for each estimate in this report. These appear in the data tables.

Briefly, this is how the sampling error indicates the reliability of an estimate. Our estimate of the total growing-stock volume in New York—12,200 million cubic feet, has an associated sampling error of 0.9 percent (110 million cubic feet). This means that our best estimate of the total growing-stock volume in New York in 1968 is 12,200 million cubic feet. If there are no errors in procedure, the odds are 2 to 1 that, if we repeated the survey in the same way, the resulting estimate of growing-stock volume would be between 12,090 million and 12,310 million cubic feet (12,200 ± 110). Similarly, the odds are 19 to 1 that it would be within ± 220 million cubic feet and 300 to 1 that it would be within ± 330 million cubic feet.

The computed sampling error is not a complete measure of reliability. There are other sources of error that this term does not include. There could be imperfections in our volume tables and equations and errors in field measurement. Procedural errors were kept to a minimum by careful training of all personnel, frequent inspection of field work, and application of the most reliable survey methods.

Computed sampling errors for the totals shown in the statistical tables are:

	Sampling error (*percent*)
Commercial forest area: 14.3 million acres	0.8
Growing-stock volume: 12.2 billion cubic feet	0.9
Sawtimber volume: 24.4 billion board feet	1.3
Average net annual growth: 245.5 million cubic feet	5.2
Average annual removals: 133.8 million cubic feet	9.5

COMMERCIAL TREE SPECIES OF NEW YORK

All species of trees were coded separately on the sample plot tree-tally sheets. In data processing, some of the infrequently tallied species were combined with a species of similar characteristics, for example, black maple volume was included with sugar maple volume. Names of the species[5] are listed below in the same order as shown in tables 13 and 14.

Softwoods

Eastern white pine	*Pinus strobus*
Red pine	*P. resinosa*
Yellow pine:	
Pitch pine	*P. rigida*
Scotch pine	*P. sylvestris*
Norway spruce	*Picea abies*
White spruce	*P. glauca*
Black spruce	*P. mariana*
Red spruce	*P. rubens*
Balsam fir	*Abies balsamea*
Eastern hemlock	*Tsuga canadensis*
Other eastern softwoods:	
Atlantic white-cedar	*Chamaecyparis thyoides*
Eastern redcedar	*Juniperus virginiana*
Tamarack	*Larix laricina*
Northern white-cedar	*Thuja occidentalis*

Hardwoods

Select white oaks:	
White oak	*Quercus alba*
Swamp white oak	*Q. bicolor*
Bur oak	*Q. macrocarpa*
Chinkapin oak	*Q. muehlenbergii*
Select red oaks:	
Northern red oak	*Q. rubra*
Other red oaks:	
Scarlet oak	*Q. coccinea*
Pin oak	*Q. palustris*
Black oak	*Q. velutina*
Chestnut oak	*Q. prinus*
Post oak	*Q. stellata*
Hickory	*Carya* species
Yellow birch	*Betula alleghaniensis*
Sweet birch	*B. lenta*
Paper birch	*B. papyrifera*
Gray birch	*B. populifolia*

[5] Little, Elbert L., Jr. Check list of native and naturalized trees of the United States (including Alaska). U.S. Dep. Agr., Agr. Handbook 41, 472 pp. 1953.

Sugar maple	*Acer saccharum*
Black maple	*A. nigrum*
Soft maples:	
Red maple	*A. rubrum*
Silver maple	*A. saccharinum*
American beech	*Fagus grandifolia*
White ash	*Fraxinus* species
Aspen	*Populus* species
American basswood	*Tilia americana*
Yellow-poplar	*Liriodendron tulipifera*
Black cherry	*Prunus serotina*
Elm	*Ulmus* species
Other eastern hardwoods:	
Flowering dogwood	*Cornus florida*
Butternut	*Juglans cinerea*
Black walnut	*J. nigra*
Cucumbertree	*Magnolia acuminata*
Black tupelo	*Nyssa sylvatica*
American sycamore	*Platanus occidentalis*
Black willow	*Salix nigra*

STATISTICAL DATA

Tables of statistical data for forest area, timber volume, annual growth, and timber removals for the entire State (National Standard Tables) and associated sampling errors for subtotals and totals appear first (tables 1 to 28).

These are followed by a series of tables that give statistics for each of the eight geographic units (tables 29 to 78). After the geographic-unit tables are the county statistics (tables 79 to 89). These county estimates have been prepared for users who want statistics for a county or group of counties. Estimated sampling errors are shown only for totals.

The users of these county data are urged to evaluate the sampling error for each total in relation to their planning needs, use of the data, and decisions based upon these data. County statistics were computed from means and variances of seven volume strata (stratified from aerial photographs) for each of the geographic units. These were applied to the volume strata within the county, assuming homogenous forest conditions throughout each stratum. If homogeneity does not exist, the actual errors of some county estimates may be greater than the calculated sampling errors.

INDEX TO TABLES

Statistical Tables for the State

Table No.

1 Area by land class

COMMERCIAL FOREST LAND

2 Ownership class
3 Stand-size and ownership class
4 Stand-volume and ownership class
5 Stocking class based upon components
6 Area-condition and ownership class
7 Growth-per-acre and ownership class
8 Forest type and ownership class
9 Noncommercial forest land by forest type
10 Number of trees by diameter class and species group

TIMBER VOLUME

11 Class of timber and species group
12 Ownership and stand size by species group
13 Species and diameter class (growing stock)
14 Species and diameter class (sawtimber)
15 Species and quality class

ANNUAL GROWTH AND TIMBER REMOVAL

16 Species (growing stock and sawtimber)
17 Ownership class (growing stock)
18 Ownership class (sawtimber)
19 Components of annual growth

ANNUAL MORTALITY

20 Species
21 Ownership and cause by species groups
22 Sampling errors for tables 1 to 21

OUTPUT OF TIMBER PRODUCTS

23 Source of material and species group
24 Sources and species group

TIMBER REMOVALS

25 Growing stock by item
26 Live sawtimber by item
27 Unused residues by industry and types of residue
28 Timber growth and available cut projections

Statistical Tables for Geographic Units

Table No.

COMMERCIAL FOREST LAND IN EACH UNIT

29 Ownership class
30 Stand-size class
31 Stocking-percent class (growing stock)
32 Site class

33 Forest type
34 Local forest type by region

TIMBER VOLUME IN EACH UNIT

35 Class of timber
36 Ownership and species group (growing stock)
37 Ownership and species group (sawtimber)
38 Stand-size and species group (sawtimber)
40 Forest type (growing stock)
41 Forest type (sawtimber)

VOLUME BY SPECIES AND DIAMETER CLASS

In the LAKE PLAIN unit:

Table No.

42 Growing stock
43 Sawtimber

In the SOUTHWEST HIGHLANDS unit:

44 Growing stock
45 Sawtimber

In the SOUTH-CENTRAL HIGHLANDS unit:

46 Growing stock
47 Sawtimber

In the SOUTHWESTERN REGION:

48 Growing stock
49 Sawtimber

In the ST. LAWRENCE-NORTHERN ADIRONDACK unit:

50 Growing stock
51 Sawtimber

In the WESTERN ADIRONDACK unit:

52 Growing stock
53 Sawtimber

In the EASTERN ADIRONDACK unit:

54 Growing stock
55 Sawtimber

In the NORTHERN REGION:

56 Growing stock
57 Sawtimber

In the CAPITOL DISTRICT unit:

58 Growing stock
59 Sawtimber

In the CATSKILL-LOWER HUDSON unit:

60 Growing stock
61 Sawtimber

In the SOUTHEASTERN REGION:

62 Growing stock
63 Sawtimber

64 Sampling error by species

SAWTIMBER BY SPECIES AND QUALITY

65 Lake Plain unit
66 Southwest Highlands unit
67 South-central Highlands unit

Table No.
68 Southwestern region
69 St. Lawrence-Northern Adirondack unit
70 Western Adirondack unit
71 Eastern Adirondack unit
72 Northern region
73 Capitol District unit
74 Catskill-Lower Hudson unit
75 Southeastern region

ANNUAL GROWTH, REMOVAL, AND MORTALITY FOR GROWING STOCK AND SAWTIMBER
76 Species in the Southwestern region
77 Species in the Northern region
78 Species in the Southeastern region

Statistical Tables for the Counties
79 Area by land class, county, unit, and region

COMMERCIAL FOREST LAND IN EACH COUNTY
80 Ownership class
81 Stand-size class
82 Forest type

TIMBER VOLUME IN EACH COUNTY
83 Tree class
84 Stand-size class (growing stock)
85 Stand-size class (sawtimber)
86 Forest type (growing stock)
87 Forest type (sawtimber)
88 Species (growing stock)
89 Species (sawtimber)

Supplementary Tables for the State
90 Codes for selected industries, Bureau of the Census
91 Employment by selected industries

Table 1.—*Area by land class, New York, 1968*

Land class	Area	
	Thousand acres	*Percent*
Forest land:		
Commercial	14,281.1	47
Productive-reserved[1]	2,480.9	8
Unproductive	407.8	1
Total forest land	17,169.8	56
Nonforest land:		
Cropland[2]	6,470.0	21
Pasture[2]	2,301.8	7
Other[3]	4,694.6	16
Total nonforest land	13,466.4	44
Total area[4]	30,636.2	100

[1] Includes 9,200 acres of Christmas tree plantations.
[2] Source: 1964 Census of Agriculture.
[3] Includes swampland, industrial and urban areas, other nonforest land, and 222,800 acres classed as water by Forest Survey standards but defined by the Bureau of the Census as land.
[4] Source: U.S. Bureau of the Census, Areas of New York: 1960. (May 1967)

Table 2—*Area of commercial forest land, by ownership class, New York, 1968*

Ownership class	Area	
	Thousand acres	*Percent*
Federal[1]	57.5	([2])
State	711.4	5
County and municipal	123.1	1
Total public	892.0	6
Forest industry:		
Pulp and paper	782.3	6
Lumber	277.0	2
Other	121.0	1
Total forest industry	1,180.3	9
Farmer-owned	3,739.7	26
Miscellaneous private	8,469.1	59
Total private	13,389.1	94
All ownerships	14,281.1	100

[1] There is no National Forest land in New York.
[2] Less than 0.5 percent.

Table 3.—*Area of commercial forest land, by stand-size and ownership class, New York, 1968*

(In thousands of acres)

Stand-size class	All ownerships	Public	Forest industry	Farmer and other
Sawtimber stands	4,226.3	278.7	594.1	3,353.5
Poletimber stands	2,642.6	272.1	238.8	2,131.7
Sapling-seedling stands	6,107.2	269.7	323.8	5,513.7
Nonstocked areas	1,305.0	71.5	23.6	1,209.9
All classes	14,281.1	892.0	1,180.3	12,208.8

Table 4.—*Area of commercial forest land, by stand-volume and ownership class, New York, 1968*

(In thousands of acres)

Stand-volume per acre (board feet)[1]	All ownerships	Public	Forest industry	Farmer and other
Less than 1,500	8,754.0	511.6	525.1	7,717.3
1,500 to 5,000	4,897.3	343.5	606.6	3,947.2
More than 5,000	629.8	36.9	48.6	544.3
All classes	14,281.1	892.0	1,180.3	12,208.8

[1] International ¼-inch rule.

Table 5.—*Area of commercial forest land, by stocking class based on selected stand components, New York, 1968*

(In thousands of acres)

Stocking class (percent)	Stocking classified in terms of—				
	All trees	Growing-stock trees			Rough and rotten trees
		Total	Desirable	Acceptable	
160	41.5	—	—	—	9.3
150 to 160	428.3	11.8	—	18.0	8.7
140 to 150	1,596.0	129.0	—	102.2	7.7
130 to 140	2,352.2	235.1	—	159.1	50.2
120 to 130	2,432.2	515.1	—	384.6	20.7
110 to 120	2,138.7	1,082.2	—	858.8	77.2
100 to 110	1,441.6	1,470.3	—	1,185.3	137.1
90 to 100	895.0	1,525.6	8.7	1,480.1	295.9
80 to 90	649.8	1,537.3	5.3	1,694.6	554.8
70 to 80	643.7	1,620.8	5.3	1,720.6	774.2
60 to 70	425.3	1,260.5	13.0	1,551.6	1,092.8
50 to 60	415.8	1,014.2	43.2	1,154.7	1,670.1
40 to 50	281.0	983.9	74.1	1,054.9	1,980.1
30 to 40	246.5	710.2	228.0	738.3	2,267.5
20 to 30	183.0	690.3	664.6	714.0	2,402.9
10 to 20	68.9	671.2	1,874.0	665.4	1,848.7
Less than 10	41.6	823.6	11,364.9	798.9	1,083.2
Total	14,281.1	14,281.1	41,281.1	14,281.1	14,281.1

Table 6.—*Area of commercial forest land, by area condition and ownership class, New York, 1968*

(In thousands of acres)

Area condition class [1]	All ownerships	Public	Forest industry	Farmer and other
Class *10-30*	—	—	—	—
Class *40*	24.5	—	14.0	10.5
Class *50*	2,665.1	252.2	165.1	2,247.8
Class *60*	6,443.8	420.0	642.7	5,381.1
Class *70*	5,147.7	219.8	358.5	4,569.4
All classes	14,281.1	892.0	1,180.3	12,208.8

[1] Class *10*.—Areas fully stocked with desirable trees and not overstocked.
Class *20*.—Areas fully stocked with desirable trees, but overstocked with all live trees.
Class *30*.—Areas medium to fully stocked with desirable trees, and with less than 30 percent of the area controlled by other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.
Class *40*.—Areas medium to fully stocked with desirable trees and with 30 percent or more of the area controlled by other trees and/or conditions that ordinarily present occupancy by desirable trees.
Class *50*.—Areas poorly stocked with desirable trees, but fully stocked with growing-stock trees.
Class *60*.—Areas poorly stocked with desirable trees, but with medium to full stocking of growing-stock trees.
Class *70*.—Areas poorly stocked with desirable trees, and poorly stocked with growing-stock trees.

Table 7.—*Area of commercial forest land, by site and ownership class, New York, 1968*

(In thousands of acres)

Growth-per-acre class (cubic feet)	All ownerships	Public	Forest industry	Farmer and other
120 to 165	882.6	164.2	113.0	605.4
85 to 120	1,836.9	103.9	115.9	1,617.1
50 to 85	5,551.0	309.1	439.6	4,802.3
Less than 50	6,010.6	314.8	511.8	5,184.0
All classes	14,281.1	892.0	1,180.3	12,208.8

Table 8.—*Area of commercial forest land, by forest type and ownership class, New York, 1968*

(In thousands of acres)

Forest type[1]	All ownerships	Public ownerships	Private ownerships
White-red pine	1,737.1	215.5	1,521.6
Spruce-fir	771.4	57.3	714.1
Oak-pine	250.9	5.2	245.7
Oak-hickory	1,276.6	51.7	1,224.9
Elm-ash-red maple	3,281.7	188.0	3,093.7
Maple-beech-birch	5,840.8	306.0	5,534.8
Aspen-birch	1,122.6	68.3	1,054.3
All types	14,281.1	892.0	13,389.1

[1] Includes 564,100 acres of plantations—451,300 acres in the white pine forest type and 112,800 acres in the spruce-fir forest type.

Table 9.—*Area of noncommercial forest land, by forest type, New York, 1968*

(In thousands of acres)

Forest type	All areas	Productive-reserved areas	Unproductive areas
White-red pine	73.1	50.5	22.6
Spruce-fir	769.8	542.1	227.7
Oak-pine	49.0	5.3	43.7
Oak-hickory	72.7	26.6	46.1
Elm-ash-red maple	58.6	—	58.6
Maple-beech-birch	1,647.2	1,647.2	—
Aspen-birch	218.3	209.2	9.1
All types	2,888.7	2,480.9	407.8

Table 10.—*Number of growing-stock trees on commercial forest land, by diameter class, softwoods and hardwoods, New York, 1968*

(In thousands of trees)

D.b.h. class (inches)	All species	Softwoods	Hardwoods
1.0 to 2.9	2,593,422	643,613	1,949,809
3.0 to 4.9	1,130,513	317,048	813,465
Total saplings	3,723,935	960,661	2,763,274
5.0 to 6.9	620,232	184,850	435,382
7.0 to 8.9	378,266	106,355	271,911
9.0 to 10.9	164,092	—	164,092
Total poletimber	1,162,590	291,205	871,385
9.0 to 10.9	51,717	51,717	—
11.0 to 12.9	114,087	27,865	86,222
13.0 to 14.9	60,844	12,827	48,017
Total small sawtimber	226,648	92,409	134,239
15.0 to 16.9	31,717	7,092	24,625
17.0 to 18.9	16,024	3,698	12,326
19.0 to 28.9	12,102	3,476	8,626
29.0 and larger	2,932	482	2,450
Total large sawtimber	62,775	14,748	48,027
All classes	5,175,948	1,359,023	3,816,925

Table 11.—*Net volume of timber on commercial forest land, by class of timber, softwoods and hardwoods, New York, 1968*

(In millions of cubic feet)

Class of timber	All species	Softwoods	Hardwoods
Sawtimber trees:			
Sawlog portion	5,018.3	1,591.3	3,427.0
Upper-stem portion	1,050.5	211.1	839.4
All sawtimber	6,068.8	1,802.4	4,266.4
Poletimber trees	6,131.0	1,378.3	4,752.7
All growing-stock trees	12,199.8	3,180.7	9,019.1
Rough trees	1,485.3	430.6	1,054.7
Rotten trees	1,068.2	82.8	985.4
Total, all timber	14,753.3	3,694.1	11,059.2

Table 12.—*Net volume of growing stock and sawtimber on commercial forest land, softwoods and hardwoods, New York, 1968*

Ownership or stand-size class	Growing stock (million cubic feet)			Sawtimber (million board feet)[1]		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
BY OWNERSHIP CLASSES						
Public	998.3	398.6	599.7	1,790.2	594.4	1,195.8
Forest industry	1,181.1	344.9	836.2	2,731.5	770.3	1,961.2
Farmer and other	10,020.4	2,437.2	7,583.2	19,886.7	5,634.1	14,252.6
All ownerships	12,199.8	3,180.7	9,019.1	24,408.4	6,998.8	17,409.6
BY STAND-SIZE CLASSES						
Sawtimber stands	6,321.8	1,853.2	4,468.6	16,645.6	5,000.2	11,645.4
Poletimber	3,510.1	782.6	2,727.5	3,933.4	958.8	2,974.6
Sapling-seedling stands	2,326.6	535.4	1,791.2	3,760.9	1,022.5	2,738.4
Nonstocked areas	41.3	9.5	31.8	68.5	17.3	51.2
All classes	12,199.8	3,180.7	9,019.1	24,408.4	6,998.8	17,409.6

[1] International ¼-inch rule.

Table 13.—*Net volume of growing stock on commercial forest land, by species and diameter class, New York, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
White pine	950.6	136.7	156.1	124.3	126.6	106.8	93.8	65.6	53.4	71.3	16.0
Red pine	327.3	116.4	99.3	67.5	28.2	7.1	5.5	1.2	1.6	.5	—
Yellow pines	20.7	4.1	5.8	4.6	4.7	1.1	—	—	—	.4	—
Spruce	472.6	145.7	96.1	81.5	54.5	38.3	24.9	17.7	8.8	5.1	—
Balsam fir	177.6	64.5	59.7	29.2	18.8	4.3	.6	—	.5	—	—
Hemlock	1,082.0	205.2	196.6	175.4	168.1	114.1	81.5	59.5	39.3	37.9	4.4
Other softwoods	149.9	41.0	51.1	28.0	14.1	6.7	6.1	1.1	1.8	—	—
Total softwoods	3,180.7	713.6	664.7	510.5	415.0	278.4	212.4	145.1	105.4	115.2	20.4
Select white oaks	254.9	27.4	29.2	35.2	40.2	38.8	26.2	22.8	10.8	15.7	8.6
Select red oaks	818.2	62.5	112.2	141.8	131.6	118.6	94.4	61.9	34.7	53.6	6.9
Other red oaks	129.5	9.9	24.8	23.7	12.6	11.8	17.9	9.3	7.0	12.5	—
Chestnut oak	228.7	22.7	45.8	56.0	44.3	27.7	18.8	9.4	.9	3.1	—
Hickory	255.1	53.2	55.0	44.1	37.0	32.2	14.3	9.0	5.9	4.4	—
Yellow birch	396.6	48.8	64.6	69.8	53.1	51.4	36.5	29.1	16.8	21.8	4.7
Sweet birch	136.4	36.4	32.9	32.7	19.8	6.6	5.5	1.8	.4	.3	—
Paper birch	175.8	40.8	47.3	36.2	23.0	17.1	4.6	3.7	1.7	1.4	—
Sugar maple	1,997.2	334.9	349.6	356.8	305.7	240.9	151.9	111.5	59.6	77.5	8.8
Soft maples	1,614.6	335.6	357.4	348.0	221.8	137.2	89.5	60.2	25.6	34.8	4.5
Beech	780.4	100.3	122.2	129.8	120.5	114.3	90.6	53.2	31.3	18.2	—
White ash	600.3	110.3	120.8	121.7	95.4	63.7	38.2	20.3	12.9	15.1	1.9
Aspen	414.5	81.7	105.5	97.0	64.8	36.0	15.4	6.7	3.7	2.5	1.2
Basswood	385.6	27.7	54.7	77.6	67.9	55.9	50.8	22.4	15.7	12.1	.8
Yellow-poplar	40.6	1.1	2.5	6.1	5.6	5.5	4.4	5.1	4.2	6.1	—
Black cherry	318.5	39.2	54.0	55.3	57.3	50.8	28.7	17.4	7.8	8.0	—
Elm	391.1	48.5	54.2	67.0	55.2	44.2	36.2	24.6	17.9	32.6	10.7
Other hardwoods	81.1	9.5	15.7	15.0	10.0	11.2	5.8	3.1	3.4	5.6	1.8
Total hardwoods	9,019.1	1,390.5	1,648.4	1,713.8	1,365.8	1,063.9	729.7	471.5	260.3	325.3	49.9
All species	12,199.8	2,104.1	2,313.1	2,224.3	1,780.8	1,342.3	942.1	616.6	365.7	440.5	70.3

Table 14.—*Net volume of sawtimber on commercial forest land, by species and diameter class, New York, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
White pine	2,608.7	428.2	456.8	398.0	368.3	279.2	246.1	353.4	78.7
Red pine	397.5	231.5	103.1	27.9	20.7	5.4	6.0	2.9	—
Yellow pines	39.4	16.1	17.1	4.0	—	—	—	2.2	—
Spruce	910.6	326.6	209.1	144.4	94.9	72.3	37.3	26.0	—
Balsam fir	218.6	122.0	76.4	16.1	2.4	—	1.7	—	—
Hemlock	2,606.6	607.4	594.0	423.5	321.4	256.7	186.9	192.9	23.8
Other softwoods	217.4	103.4	51.7	25.9	23.3	5.0	8.1	—	—
Total softwoods	6,998.8	1,835.2	1,508.2	1,039.8	831.0	618.6	486.1	577.4	102.5
Select white oaks	668.5	—	142.3	149.6	107.9	98.9	50.3	77.9	41.6
Select red oaks	2,016.1	—	473.9	455.4	380.5	266.8	155.4	252.7	31.4
Other red oaks	299.2	—	46.0	46.5	74.5	40.9	31.6	59.7	—
Chestnut oak	408.7	—	159.7	109.6	79.1	40.9	4.4	15.0	—
Hickory	397.0	—	132.3	122.0	58.0	40.0	25.2	19.5	—
Yellow birch	956.0	—	214.1	220.3	165.9	133.8	84.5	113.3	24.1
Sweet birch	129.9	—	70.9	26.4	21.8	8.0	1.6	1.2	—
Paper birch	217.0	—	90.8	73.3	20.7	17.0	8.9	6.3	—
Sugar maple	3,876.2	—	1,123.8	950.7	636.4	485.6	267.9	368.9	42.9
Soft maples	2,324.3	—	833.1	548.4	374.3	260.6	118.7	166.4	22.8
Beech	1,789.4	—	453.6	466.7	394.4	235.2	148.3	91.2	—
White ash	967.0	—	344.2	245.1	154.5	87.4	59.0	67.4	9.4
Aspen	546.2	—	259.1	153.5	69.2	29.4	18.0	11.7	5.3
Basswood	891.2	—	245.6	213.6	203.5	95.6	70.0	57.9	5.0
Yellow-poplar	129.9	—	19.8	20.8	18.2	21.8	19.7	29.6	—
Black cherry	697.0	—	216.9	206.0	124.2	76.5	35.2	38.2	—
Elm	930.2	—	203.7	173.9	149.2	108.3	84.3	160.1	50.7
Other hardwoods	165.8	—	35.0	43.3	23.7	13.0	15.0	27.4	8.4
Total hardwoods	17,409.6	—	5,064.8	4,225.1	3,056.0	2,059.7	1,198.0	1,564.4	241.6
All species	24,408.4	1,835.2	6,573.0	5,264.9	3,887.0	2,678.3	1,684.1	2,141.8	344.1

[1] International ¼-inch rule.

Table 15.—*Net volume of sawtimber on commercial forest land, by species and quality class, New York, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
Softwoods:					
White pine	2,608.7	34.4	164.9	1,190.1	1,219.3
Red pine	397.5	2.6	6.3	259.6	129.0
Yellow pine	39.4	—	.9	24.5	14.0
Other softwoods[3]	3,953.2	—	—	—	—
Total softwoods	6,998.8	37.0	172.1	1,474.2	1,362.3
Hardwoods:					
Select white oaks	668.5	141.7	168.9	274.7	83.2
Select red oaks	2,016.1	513.9	440.7	796.9	264.6
Other red oaks	299.2	61.6	51.0	127.6	59.0
Chestnut oak	408.7	75.0	95.5	187.8	50.4
Hickory	397.0	35.3	57.0	169.8	134.9
Yellow birch	956.0	180.9	244.5	471.0	59.6
Sweet birch	129.9	6.2	29.4	80.2	14.1
Paper birch	217.0	24.4	54.4	124.2	14.0
Sugar maple	3,876.2	598.9	923.1	1,801.0	553.2
Soft maples	2,324.3	192.8	419.3	1,241.7	470.5
Beech	1,789.4	93.9	299.5	1,118.7	277.3
White ash	967.0	170.3	255.9	374.1	166.7
Aspen	546.2	31.5	82.1	279.7	152.9
Basswood	891.2	121.2	249.1	434.5	86.4
Yellow-poplar	129.9	48.4	16.7	38.6	26.2
Black cherry	697.0	78.9	137.1	318.2	162.8
Elm	930.2	172.9	243.1	386.1	128.1
Other hardwoods	165.8	8.5	28.2	94.6	34.5
Total hardwoods	17,409.6	2,556.3	3,795.5	8,319.4	2,738.4
Hardwood quality (in percent)	100	15	22	47	16

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for onstruction logs.
[3] Species other than pine are not graded into standard-lumber grades.

Table 16.—*Average annual net growth and removal of growing stock and sawtimber on commercial forest land, by species, New York, 1950-67*[1]

Species	Growing stock		Sawtimber	
	Annual net growth	Annual timber removals	Annual net growth	Annual timber removals
	Thousand cubic feet		*Thousand board feet*	
Softwoods:				
White pine	26,646	12,600	97,190	56,751
Red pine	9,609	1,626	20,281	1,137
Yellow pines	910	—	1,497	—
Spruce	7,129	6,500	3,759	22,413
Balsam fir	6,563	5,292	8,630	5,606
Hemlock	17,010	11,795	49,134	48,450
Other softwoods	1,633	2,887	3,509	3,743
Total softwoods	69,500	40,700	184,000	138,100
Hardwoods:				
Select white oaks	3,952	3,177	14,085	10,390
Select red oaks	19,043	7,565	65,474	20,021
Other red oaks	3,174	—	7,869	—
Chestnut oak	4,350	808	14,409	1,426
Hickory	6,187	933	13,887	3,882
Yellow birch	1,814	4,374	3,969	18,898
Sweet birch	3,375	3,561	5,034	13,135
Paper birch	2,486	1,151	3,196	3,699
Sugar maple	40,314	31,672	98,911	132,755
Soft maples	33,612	9,698	50,556	35,364
Beech	11,825	11,700	29,527	41,669
White ash	18,359	4,599	45,263	11,764
Aspen	11,563	883	24,133	—
Basswood	8,235	5,604	25,564	18,882
Yellow-poplar	714	—	3,258	—
Black cherry	8,333	3,481	21,075	9,255
Elm[2]	— 3,276	3,051	— 7,348	11,779
Other hardwoods	1,940	843	3,638	2,081
Total hardwoods	176,000	93,100	422,500	335,000
Total, all species	245,500	133,800	606,500	473,100

[1] Based on trend levels between 1950 and 1967 as developed from remeasured permanent sample plots.

[2] Elm had negative growth due to extremely high mortality.

Table 17.—*Annual net growth and removal of growing stock on commercial forest land, by ownership class, softwoods and hardwoods, New York*

(In thousands of cubic feet)

Species group	All ownerships	Public	Forest industry	Farmer and other
AVERAGE GROWTH AND REMOVALS FOR 1950-67				
AVERAGE ANNUAL NET GROWTH				
Softwoods	69,500	9,369	7,093	53,038
Hardwoods	176,000	11,974	15,096	148,930
All species	245,500	21,343	22,189	201,968
AVERAGE ANNUAL REMOVALS				
Softwoods	40,700	956	5,736	34,008
Hardwoods	93,100	1,214	6,004	85,882
All species	133,800	2,170	11,740	119,890
GROWTH AND REMOVALS FOR 1967				
ANNUAL NET GROWTH				
Softwoods	80,100	10,798	8,175	61,127
Hardwoods	202,200	13,756	17,343	171,101
All species	282,300	24,554	25,518	232,228
ANNUAL REMOVALS				
Softwoods	26,700	627	3,763	22,310
Hardwoods	110,000	1,434	7,094	101,472
All species	136,700	2,061	10,857	123,782

Table 18.—*Annual net growth and removal of sawtimber on commercial forest land, by ownership class, softwoods and hardwoods, New York*

(In thousands of board feet) [1]

Species group	All ownerships	Public	Forest industry	Farmer and other
AVERAGE GROWTH AND REMOVALS FOR 1950-67				
AVERAGE ANNUAL NET GROWTH				
Softwoods	184,000	17,736	16,715	149,549
Hardwoods	422,500	29,632	43,138	349,730
All species	606,500	47,368	59,853	499,279
AVERAGE ANNUAL REMOVALS				
Softwoods	138,100	257	18,361	119,482
Hardwoods	335,000	1,995	15,490	317,515
All species	473,100	2,252	33,851	436,997
GROWTH AND REMOVALS FOR 1967				
ANNUAL NET GROWTH				
Softwoods	199,000	19,182	18,078	161,740
Hardwoods	457,000	32,052	46,660	378,288
All species	656,000	51,234	64,738	540,028
ANNUAL REMOVALS				
Softwoods	84,000	156	11,168	72,676
Hardwoods	379,000	2,257	17,525	359,218
All species	463,000	2,413	28,693	431,894

[1] International ¼-inch rule.

Table 19.—*Components of average annual net growth of growing stock and sawtimber on commercial forest land, softwoods and hardwoods, New York, 1950-67*

Components	All species	Softwoods	Hardwoods
	GROWING STOCK		
	Thousand cubic feet		
Growth on initial growing stock[1]	184,455	47,426	137,029
Ingrowth—saplings that became poletimber	218,553	62,692	155,861
Gross growth	403,008	110,118	292,890
Cull increment	52,608	13,318	39,290
Annual mortality	104,900	27,300	77,600
Annual net growth	245,500	69,500	176,000
	SAWTIMBER		
	Thousand board feet[2]		
Growth on initial sawtimber inventory[1]	343,860	111,793	232,067
Ingrowth—poletimber trees that became sawtimber	482,822	137,045	345,777
Gross growth	826,682	248,838	577,844
Cull increment	88,682	21,838	66,844
Annual mortality	131,500	43,000	88,500
Annual net growth	606,500	184,000	422,500

[1] Including growth on trees that were cut.
[2] International ¼-inch rule.

Table 20.—*Average annual mortality of growing stock and sawtimber on commercial forest land, by species, New York, 1950-67*

Species	Growing stock	Sawtimber
	Thousand cubic feet	*Thousand board feet*[1]
Softwoods:		
White pine	6,577	11,356
Red pine	1,893	2,370
Yellow pines	830	945
Spruce	7,353	14,779
Balsam fir	3,497	2,895
Hemlock	6,189	10,139
Other softwoods	961	516
Total	27,300	43,000
Hardwoods:		
Select white oaks	1,080	1,053
Select red oaks	4,199	4,895
Other red oaks	700	707
Chestnut oak	2,878	2,291
Hickory	1,364	1,038
Yellow birch	8,519	12,598
Sweet birch	744	376
Paper birch	1,645	1,099
Sugar maple	8,889	11,060
Soft maples	7,411	8,080
Beech	4,633	5,292
White ash	4,048	3,384
Aspen	7,729	1,804
Basswood	2,590	2,215
Yellow-poplar	158	270
Black cherry	3,291	5,499
Elm	15,534	24,490
Other hardwoods	2,188	2,349
Total	77,600	88,500
Total, all species	104,900	131,500

[1] International ¼-inch rule.

Table 21.—*Average annual mortality of growing stock and sawtimber on commercial forest land, softwoods and hardwoods, New York, 1950-67*

Ownership and cause	Growing stock (thousand cubic feet)			Sawtimber (thousand board feet)[1]		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
			BY OWNERSHIP			
Public	7,564	1,496	6,068	6,753	1,631	5,122
Forest industry	10,091	3,000	7,091	14,690	5,182	9,508
Farmer and other	87,245	22,804	64,441	110,057	36,187	73,870
All ownerships	104,900	27,300	77,600	131,500	43,000	88,500
			BY CAUSE			
Fire	150	—	150	386	—	386
Insects	913	593	320	148	148	—
Disease	38,153	4,676	33,477	49,042	4,736	44,306
Other	32,065	14,562	17,503	48,253	27,555	20,698
Unknown	33,619	7,469	26,150	33,671	10,561	23,110
All causes	104,900	27,300	77,600	131,500	43,000	88,500

[1] International ¼-inch rule.

Table 22.—*Sampling errors for major forest area and timber-volume classes in New York, 1968*

Table No.	Item classification	Sampling error
	FOREST AREA	
		Percent
1	Forest-land area:	
	Commercial	0.8
	Unproductive	10.0
	Total	0.7
2	Ownership:[1]	
	Forest industry	6
	Farmer-owned	4
	Misc. private	2
	Farmer and misc. private	1
3	Stand-size class:	
	Sawtimber	3
	Poletimber	4
	Sapling-seedling	3
	Nonstocked areas	9
4	Stand-volume per acre (board feet):	
	Less than 1,500	2
	1,500 to 5,000	3
	More than 5,000	9
6	Area-condition class:	
	40	(*)
	50	4
	60	2
	70	3
7	Growth-per-acre class (cubic feet):	
	120 to 165 cu. ft.	8
	85 to 120 cu. ft.	6
	50 to 85 cu. ft.	3
	Less than 50 cu. ft.	3
8	Forest type:	
	White-red pine	6
	Spruce-fir	9
	Oak-pine	15
	Oak-hickory	6
	Elm-ash-red maple	4
	Maple-beech-birch	3
	Aspen-birch	9
	Plantations	11

Table No.	Item classification	Sampling error: *Cubic feet*	Sampling error: *Board feet*
	TIMBER VOLUME		
		Percent	
11	Class of timber:		
	Sawtimber trees	2	—
	Poletimber trees	2	—
	All growing stock	1	—
	Rough trees	3	—
	Rotten trees	3	—
	All live trees	1	—
12	Ownership and stand size:		
	Public	8	10
	Forest industry	7	8
	Farmer and other	2	2
	Sawtimber stands	3	2
	Poletimber stands	4	5
	Sapling-seedling	4	5
	Nonstocked areas	16	25
	Softwoods	3	4
	Hardwoods	1	2
	All classes	1	1

Continued

* Sampling error of 50 to 99 percent.

[1] Some classifications have no sampling errors and some less important classifications have been omitted.

Table 22.—*Continued*

Table No.	Item classification	Sampling error: Cubic feet	Sampling error: Board feet
	TIMBER VOLUME	*Percent*	
13–	Species:		
14	White pine	7	7
	Red pine	16	19
	Yellow pines	26	27
	Spruce	8	9
	Balsam fir	11	17
	Hemlock	5	6
	Other softwoods	16	19
	Select white oaks	8	9
	Select red oaks	6	7
	Other red oaks	14	15
	Chestnut oak	10	12
	Hickory	8	11
	Yellow birch	6	8
	Sweet birch	9	14
	Paper birch	9	15
	Sugar maple	4	5
	Soft maples	4	6
	Beech	5	6
	White ash	5	7
	Aspen	7	12
	Basswood	8	9
	Yellow-poplar	24	23
	Black cherry	7	9
	Elm	6	8
	Other hardwoods	16	21
	Diameter classes: (inches)		
	5.0- 6.9	2	—
	7.0- 8.9	2	—
	9.0-10.9[2]	2	5
	11.0-12.9	2	2
	13.0-14.9	2	2
	15.0-16.9	3	3
	17.0-18.9	3	3
	19.0-20.9	5	4
	21.0-28.9	5	4
	29.0 and larger	6	11

Table No.	Item classification	Sampling error: Cubic feet	Sampling error: Board feet
	GROWTH-REMOVAL	*Percent*	
16	Growth by:		
	Softwoods	13	17
	Hardwoods	6	7
	All species	5	7
16	Removals by:		
	Softwoods	19	21
	Hardwoods	11	13
	All species	10	11
17–	Growth by ownership:		
18	Public	27	46
	Forest industry	31	36
	Farmer and other	6	11
	Removals by ownership:		
	Public	61	74
	Forest industry	62	32
	Farmer and other	7	12
	MORTALITY		
20	By species group:		
	Softwoods	14	24
	Hardwoods	8	14
	All species	8	13
21	By ownership:		
	Other public	30	50
	Forest industry	26	35
	Farmer and other	8	14
21	By cause:		
	Fire	100	100
	Insect	52	72
	Disease	11	18
	Other	15	25
	Unknown	13	20

[2] Board-foot sampling error for this class is for softwoods only.

Table 23.—*Output of timber products, by source of material, softwoods and hardwoods, New York, 1967*

Product and species group	Standard units	Total output		Roundwood products		Plant byproducts	
		Number of units	Thousand cubic feet	Number of units	Thousand cubic feet	Number of units	Thousand cubic feet
Sawlogs:							
Softwood	M bd. ft.[1]	63,526	10,988	63,526	10,988	—	—
Hardwood	M bd. ft.[1]	289,850	45,037	289,850	45,037	—	—
Total	M bd. ft.[1]	353,376	56,025	353,376	56,025	—	—
Veneer logs:							
Softwood	M bd. ft.[1]	—	—	—	—	—	—
Hardwood	M bd. ft.[1]	22,053	3,426	22,053	3,426	—	—
Total	M bd. ft.[1]	22,053	3,426	22,053	3,426	—	—
Pulpwood:							
Softwood	Std. cords[2]	133,700	10,696	132,600	10,608	1,100	88
Hardwood	Std. cords[2]	329,400	26,352	261,700	20,936	67,700	5,416
Total	Std. cords[2]	463,100	37,048	394,300	31,544	68,800	5,504
Poles:							
Softwood	M pieces	5	31	5	31	—	—
Hardwood	M pieces	—	—	—	—	—	—
Total	M pieces	5	31	5	31	—	—
Posts (round & split):							
Softwood	M pieces	700	434	700	434	—	—
Hardwood	M pieces	4,100	2,542	4,100	2,542	—	—
Total	M pieces	4,800	2,976	4,800	2,976	—	—

CONTINUED

Table 23.—*Continued*

Product and species group	Standard units	Total output		Roundwood products		Plant byproducts	
		Number of units	Thousand cubic feet	Number of units	Thousand cubic feet	Number of units	Thousand cubic feet
Other:[3]							
Softwood	M cu. ft.	1,131	1,131	97	97	1,034	1,034
Hardwood	M cu. ft.	6,812	6,812	3,785	3,785	3,027	3,027
Total	M cu. ft.	7,943	7,943	3,882	3,882	4,061	4,061
Total industrial products:[4]							
Softwood	—	—	23,280	—	22,158	—	1,122
Hardwood	—	—	84,169	—	75,726	—	8,443
Total	—	—	107,449	—	97,884	—	9,565
Fuelwood:							
Softwood	Std. cords	50,212	4,017	44,000	3,520	6,212	497
Hardwood	Std. cords	482,738	38,619	400,000	32,000	82,738	6,619
Total	Std. cords	532,950	42,636	444,000	35,520	88,950	7,116
All products:							
Softwood	—	—	27,297	—	25,678	—	1,619
Hardwood	—	—	122,788	—	107,726	—	15,062
Total	—	—	150,085	—	133,404	—	16,681

[1] International ¼-inch rule.
[2] Rough wood basis (includes chips converted to equivalent standard cords).
[3] Includes hewn ties, excelsior bolts, shingle bolts, turnery bolts, chemical wood, etc.
[4] There were no outputs in 1967 for cooperage, piling, and mine timbers.
Note: The industrial timber-product outputs are based upon a 100-percent canvass of the primary wood-using industries made in 1968 by the New York State Conservation Department.

Table 24.—*Output of roundwood products, by source, softwoods and hardwoods, New York, 1967*

(In thousands of cubic feet)

Product and species group	All sources	Growing-stock trees[1]			Rough and rotten trees[1]	Salvable dead trees[1]	Other sources[2]
		Total	Sawtimber	Poletimber			
PRINCIPAL INDUSTRIAL PRODUCTS							
Sawlogs:							
Softwood	10,988	10,375	10,363	12	8	—	605
Hardwood	45,037	43,534	43,376	158	255	173	1,075
Total	56,025	53,909	53,739	170	263	173	1,680
Veneer logs and bolts:							
Softwood	—	—	—	—	—	—	—
Hardwood	3,426	3,426	3,426	—	—	—	—
Total	3,426	3,426	3,426	—	—	—	—
Pulpwood:							
Softwood	10,608	10,327	7,800	2,527	—	—	281
Hardwood	20,936	17,940	13,055	4,885	1,002	437	1,557
Total	31,544	28,267	20,855	7,412	1,002	437	1,838
MISCELLANEOUS INDUSTRIAL PRODUCTS							
Poles:							
Softwood	31	31	26	5	—	—	—
Hardwood	—	—	—	—	—	—	—
Total	31	31	26	5	—	—	—

CONTINUED

Table 24.—*Continued*

Product and species group	All sources	Growing-stock trees[1]			Rough and rotten trees[1]	Salvable dead trees[1]	Other sources[2]
		Total	Sawtimber	Poletimber			
Posts: (round and split)							
Softwood	434	422	319	103	—	—	12
Hardwood	2,542	2,178	1,585	593	122	53	189
Total	2,976	2,600	1,904	696	122	53	201
Other:							
Softwood	97	94	71	23	—	—	3
Hardwood	3,785	3,243	2,360	883	181	79	282
Total	3,882	3,337	2,431	906	181	79	285
All misc. industrial products:							
Softwood	562	547	416	131	—	—	15
Hardwood	6,327	5,421	3,945	1,476	303	132	471
Total	6,889	5,968	4,361	1,607	303	132	486
Total industrial products:							
Softwood	22,158	21,249	18,579	2,670	8	—	901
Hardwood	75,726	70,321	63,802	6,519	1,560	742	3,103
Total	97,884	91,570	82,381	9,189	1,568	742	4,004

	NONINDUSTRIAL PRODUCTS						
Fuelwood:							
Softwood	3,520	473	315	158	2,078	624	345
Hardwood	32,000	9,455	5,456	3,999	10,463	7,801	4,281
Total	35,520	9,928	5,771	4,157	12,541	8,425	4,626
	ALL PRODUCTS						
Softwood	25,678	21,722	18,894	2,828	2,086	624	1,246
Hardwood	107,726	79,776	69,258	10,518	12,023	8,543	7,384
Total	133,404	101,498	88,152	13,346	14,109	9,167	8,630

[1] On commercial forest land.

[2] Includes trees less than 5.0 inches in diameter, and tree tops and limbs from commercial forest areas or any material from noncommercial forest land or nonforest land such as fence row and suburban areas.

Table 25.—*Timber removal from growing stock on commercial forest land, by item, softwoods and hardwoods, New York, 1967*

(In thousands of cubic feet)

Item	All species	Softwoods	Hardwoods
Roundwood products:			
Sawlogs	53,909	10,375	43,534
Veneer logs and bolts	3,426	—	3,426
Pulpwood	28,267	10,327	17,940
Poles	31	31	—
Posts	2,600	422	2,178
Other	3,337	94	3,243
Fuelwood	9,928	473	9,455
All products[1]	101,498	21,722	79,776
Logging residues	22,666	4,471	18,195
Total removals	124,164	26,193	97,971

[1] There were no removals in 1967 for cooperage, piling, and mine timbers.

Table 26.—*Timber removal from live sawtimber on commercial forest land, by item, softwoods and hardwoods, New York, 1967*

(In thousands of board feet)[1]

Item	All species	Softwoods	Hardwoods
Roundwood products:			
Sawlogs	261,899	40,120	221,779
Veneer logs and bolts	22,053	—	22,053
Pulpwood	88,703	30,258	58,445
Poles	101	101	—
Posts	8,333	1,237	7,096
Other	10,840	275	10,565
Fuelwood	25,647	1,222	24,425
All products[2]	417,576	73,213	344,363
Logging residues	17,856	4,366	13,490
Total removals	435,432	77,579	357,853

[1] International ¼-inch rule.
[2] There were no removals in 1967 for cooperage, piling, and mine timbers.

Table 27.—*Volume of unused residues at primary manufacturing plants, by industry and type of residue, softwoods and hardwoods, New York, 1967*

(In thousands of cubic feet)

Species group and type of residue	All industries	Lumber	Veneer and plywood	Other
Softwoods:				
Coarse[1]	1,728	1,726	—	2
Fine[2]	513	513	—	—
Total	2,241	2,239	—	2
Hardwoods:				
Coarse[1]	3,710	3,624	—	86
Fine[2]	1,960	1,829	12	119
Total	5,670	5,453	12	205
All species:				
Coarse[1]	5,438	5,350	—	88
Fine[2]	2,473	2,342	12	119
Total	7,911	7,692	12	207

[1] Material such as slabs, edgings, and veneer cores.
[2] Material such as sawdust and shavings.

Table 28.—*Projections of net annual growth, available cut, and inventory of growing stock and sawtimber on commercial forest land, New York, 1968-98*[1]

Species group	1968 (inventory year)	1978	1988	1998
	GROWING STOCK (*Million cubic feet*)			
Softwoods:				
Cut	29.7	55.6	82.7	107.7
Growth	81.4	91.7	101.4	108.9
Inventory	3,197.1	3,635.7	3,900.6	3,991.5
Hardwoods:				
Cut	155.5	220.5	295.9	370.9
Growth	239.5	279.2	325.6	369.5
Inventory	9,295.2	10,008.8	10,437.6	10,565.9
Total:				
Cut	185.2	276.1	378.6	478.6
Growth	320.9	370.9	427.0	478.4
Inventory	12,492.3	13,644.5	14,338.2	14,557.4
	SAWTIMBER (*Million board feet*)[2]			
Softwoods:				
Cut	93	172	247	305
Growth	202	229	247	253
Inventory	6,949	7,777	8,027	7,737
Hardwoods:				
Cut	515	682	815	865
Growth	533	563	566	535
Inventory	17,422	16,916	14,983	11,998
Total:				
Cut	608	854	1,062	1,170
Growth	735	792	813	788
Inventory	24,371	24,693	23,010	19,735

[1] Based upon the following assumptions: farmland abandonment and reversion to forest will be offset by forest land lost by land-clearing, growth rates will continue to be the same for the next 30 years, and trends in forestry programs will continue at the same rate as in the past. Timber available for cutting is assumed to be that amount that will bring growth and cut into balance by the end of 30 years.

[2] International ¼-inch rule.

Table 29.—*Area of commercial forest land by ownership class, geographic unit, and region, 1968*

(In thousands of acres)

Unit and region	Public				Forest industry		Other private		Total private	All ownerships
	Federal	State	Other	Total	Lumber	Other	Farmer	Other		
SOUTHWESTERN:										
Lake Plain	12.0	83.2	14.4	109.6	36.0	—	713.8	1,029.2	1,779.0	1,888.6
Southwest Highlands	0	108.8	10.4	119.2	11.5	5.1	642.3	877.8	1,536.7	1,655.9
South-central Highlands	6.5	203.0	8.1	217.6	64.3	20.3	785.9	1,065.4	1,935.9	2,153.5
Total	18.5	395.0	32.9	446.4	111.8	25.4	2,142.0	2,972.4	5,251.6	5,698.0
NORTHERN:										
St. Lawrence-N. Adirondack	10.3	118.5	13.3	142.1	56.4	370.1	659.4	1,277.0	2,362.9	2,505.0
Western Adirondack	9.9	113.9	29.7	153.5	19.5	219.0	241.3	854.7	1,334.5	1,488.0
Eastern Adirondack	0	9.3	10.0	19.3	52.0	256.5	84.9	881.9	1,275.3	1,294.6
Total	20.2	241.7	53.0	314.9	127.9	845.6	985.6	3,013.6	4,972.7	5,287.6
SOUTHEASTERN:										
Capitol District	5.8	32.3	16.5	54.6	32.0	27.1	320.9	805.6	1,185.6	1,240.2
Catskill-Lower Hudson	13.0	42.4	20.7	76.1	5.3	5.2	291.2	1,677.5	1,979.2	2,055.3
Total	18.8	74.7	37.2	130.7	37.3	32.3	612.1	2,483.1	3,164.8	3,295.5
State total	57.5	711.4	123.1	892.0	277.0	903.3	3,739.7	8,469.1	13,389.1	14,281.1
Sampling errors, in percent [1]										
Southwestern	—	—	—	—	25	(*)	5	4	2	1
Northern	—	—	—	—	24	10	9	4	1	1
Southeastern	—	—	—	—	(*)	(*)	9	3	2	2
State total	—	—	—	—	20	9	4	2	1	1

* More than 50 percent sampling error.

[1] Acreages in public holdings were obtained from ownership records and therefore have no sampling errors.

Table 30.—*Area of commercial forest land by stand-size class, geographic unit, and region, 1968*

(In thousands of acres)

Unit and region	Sawtimber stands	Poletimber stands	Sapling-seedling stands	Nonstocked areas	Total
SOUTHWESTERN:[1]					
Lake Plain	463.4	266.3	956.7	202.2	1,888.6
Southwest Highlands	351.3	244.0	843.2	217.4	1,655.9
South-central Highlands	596.9	514.4	808.2	234.0	2,153.5
Total	1,411.6	1,024.7	2,608.1	653.6	5,698.0
NORTHERN:					
St. Lawrence-N. Adirondack	645.9	460.9	1,162.4	235.8	2,505.0
Western Adirondack	414.3	194.7	607.4	271.6	1,488.0
Eastern Adirondack	696.4	210.1	381.8	6.3	1,294.6
Total	1,756.6	865.7	2,151.6	513.7	5,287.6
SOUTHEASTERN:					
Capitol District	428.0	213.6	523.0	75.6	1,240.2
Catskill-Lower Hudson	630.1	538.6	824.5	62.1	2,055.3
Total	1,058.1	752.2	1,347.5	137.7	3,295.5
State total	4,226.3	2,642.6	6.107.2	1,305.0	14,281.1
Sampling errors, in percent					
Southwestern	6	8	3	10	1
Northern	4	7	5	19	1
Southeastern	6	7	5	23	2
State total	3	4	3	9	1

[1] Estimates for the Southwestern Region were revised and are slightly different from those in the preliminary statistical tables.

Table 31.—*Area of commercial forest land by stocking-percent class, geographic unit, and region, 1968*

(In thousands of acres)

Unit and region	Stocking class (*in percent*)				Total
	70 or more	40 to 70	10 to 40	less than 10	
SOUTHWESTERN:					
Lake Plain	1,067.5	407.5	285.8	127.8	1,888.6
Southwest Highlands	819.4	377.8	300.1	158.6	1,655.9
South-central Highlands	1,288.4	371.3	381.1	112.7	2,153.5
Total	3,175.3	1,156.6	967.0	399.1	5,698.0
NORTHERN:					
St. Lawrence-N. Adirondack	1,289.4	680.3	368.9	166.4	2,505.0
Western Adirondack	594.8	364.1	350.2	178.9	1,488.0
Eastern Adirondack	898.6	345.6	50.4	—	1,294.6
Total	2,782.8	1,390.0	769.5	345.3	5,287.6
SOUTHEASTERN:					
Capitol District	755.5	284.5	152.3	47.9	1,240.2
Catskill-Lower Hudson	1,413.6	427.5	182.9	31.3	2,055.3
Total	2,169.1	712.0	335.2	79.2	3,295.5
State total	8,127.2	3,258.6	2,071.7	823.6	14,281.1

Table 32.—*Area of commercial forest land by site class, geographic unit, and region, 1968*

(In thousands of acres)

Unit and region	Site class (*cubic feet per acre*)				Total
	Over 120	85 to 120	50 to 85	Under 50	
SOUTHWESTERN:					
Lake Plain	118.7	276.7	607.4	885.8	1,888.6
Southwest Highlands	128.4	268.1	650.9	608.5	1,655.9
South-central Highlands	80.1	310.2	793.5	969.7	2,153.5
Total	327.2	855.0	2,051.8	2,464.0	5,698.0
NORTHERN:					
St. Lawrence-N. Adirondack	174.0	234.8	1,102.1	994.1	2,505.0
Western Adirondack	131.4	247.3	732.4	376.9	1,488.0
Eastern Adirondack	132.5	211.4	472.9	477.8	1,294.6
Total	437.9	693.5	2,307.4	1,848.8	5,287.6
SOUTHEASTERN:					
Capitol District	68.2	133.6	502.8	535.6	1,240.2
Catskill-Lower Hudson	49.3	154.8	689.0	1,162.2	2,055.3
Total	117.5	288.4	1,191.8	1,697.8	3,295.5
State total	882.6	1,836.9	5,551.0	6,010.6	14,281.1
Sampling errors, in percent					
Southwestern	13	8	5	4	1
Northern	11	12	5	5	1
Southeastern	21	13	6	4	2
State total	8	6	3	3	1

Table 33.—*Area of commercial forest land by forest type, geographic unit, and region, 1968*

(In thousands of acres)

Unit and region[1]	White or red pine	Spruce-fir	Plantation	Oak-pine	Oak-hickory	Elm-ash-red maple	Maple-beech-birch	Aspen-paper birch	Total
SOUTHWESTERN:									
Lake Plain	50.6	19.3	79.6	—	121.0	766.0	761.0	91.1	1,888.6
Southwest Highlands	69.2	13.1	90.6	17.6	136.2	279.0	924.9	125.3	1,655.9
South-central Highlands	212.1	16.1	141.8	32.8	130.1	447.6	1,025.4	147.6	2,153.5
Total	331.9	48.5	312.0	50.4	387.3	1,492.6	2,711.3	364.0	5,698.0
NORTHERN:									
St. Lawrence-N. Adirondack	159.7	298.3	84.5	6.3	28.4	576.5	974.5	376.8	2,505.0
Western Adirondack	98.0	106.7	37.5	3.8	17.6	242.9	817.7	163.8	1,488.0
Eastern Adirondack	205.9	194.6	14.9	47.8	54.6	109.8	561.4	105.6	1,294.6
Total	463.6	599.6	136.9	57.9	100.6	929.2	2,353.6	646.2	5,287.6
SOUTHEASTERN:									
Capitol District	247.3	3.9	56.8	43.3	189.2	304.3	344.5	50.9	1,240.2
Catskill-Lower Hudson	243.0	6.6	58.4	99.3	599.5	555.6	431.4	61.5	2,055.3
Total	490.3	10.5	115.2	142.6	788.7	859.9	775.9	112.4	3,295.5
State total	1,285.8	658.6	564.1	250.9	1,276.6	3,281.7	5,840.8	1,122.6	14,281.1
Sampling errors, in percent									
Southwestern	13	39	15	35	12	6	4	14	1
Northern	10	10	21	30	24	8	5	13	1
Southeastern	10	(*)	23	19	8	7	8	22	2
State total	6	9	11	15	6	4	3	9	1

[1]Estimates for the Southwestern Region were revised and are slightly different from those in the preliminary statistical tables.
* Sampling error greater than 50 percent.

Table 34.—*Area of commercial forest land by local forest type, major forest type, and region, 1968*

(In thousands of acres)

Forest type	South-western	Northern	South-eastern	Total[1]
White pine	67.1	215.0	220.3	502.4
White-red pine	—	—	4.6	4.6
White pine-hemlock	5.5	25.1	11.5	42.1
W. pine-hemlock-red pine	—	—	3.5	3.5
Hemlock	259.3	169.2	191.1	619.6
Red pine	—	23.0	3.5	26.5
Pitch pine	—	31.3	55.8	87.1
White-red-jack pine	331.9	463.6	490.3	1,285.8
Balsam fir	—	120.5	—	120.5
Red spruce and black spruce	9.5	280.7	4.0	294.2
Tamarack	—	6.7	—	6.7
White spruce	20.7	8.8	—	29.5
Northern white-cedar	5.5	124.3	—	129.8
Red spruce-hemlock	12.8	58.6	6.5	77.9
Spruce-fir	48.5	599.6	10.5	658.6
Oak-pine	50.4	57.9	142.6	250.9
Chestnut oak	23.4	—	132.0	155.4
W. oak-r. oak-hickory	125.0	22.6	223.1	370.7
Northern red oak	37.1	32.1	46.5	115.7
Yellow-poplar-W.O.-N.R.O.	176.7	40.6	358.4	575.7
Sweetgum-yellow poplar	5.5	—	—	5.5
Oak-hemlock	19.6	5.3	28.7	53.6
Oak-hickory	387.3	100.6	788.7	1,276.6
Bl. ash-elm-red-maple	1,355.9	841.9	744.3	2,942.1
Elm-ash-r. maple-hemlock	94.2	43.3	51.8	189.3
Elm-ash-r. maple-w. pine	42.5	44.0	63.8	150.3
Elm-ash-red maple	1,492.6	929.2	859.9	3,281.7
Maple-beech-birch	2,446.1	2,066.0	626.7	5,138.8
Black cherry	44.3	48.9	49.2	142.4
Maple-beech-birch-hemlock	206.6	217.1	91.5	515.2
Maple-beech-birch-w. pine	—	6.2	8.5	14.7
Maple-beech-birch-spruce-fir	14.3	15.4	—	29.7
Maple-beech-birch	2,711.3	2,353.6	775.9	5,840.8

Continued

'able 34.—*Continued*

Forest type	South-western	Northern	South-eastern	Total[1]
Aspen	358.8	366.3	79.9	805.0
Paper birch	5.2	72.5	4.0	81.7
Gray birch	—	207.4	28.5	235.9
Aspen-birch	364.0	646.2	112.4	1,122.6
Plantations	312.0	136.9	115.2	564.1
All forest types	5,698.0	5,287.6	3,295.5	14,281.1

[1] Totals for the white-red-jack pine and the spruce-fir forest types exclude plantations, which re shown separately.

Table 35.—*Volume of timber on commercial forest by class of timber, geographic unit, and region, 1968*

(In millions of cubic feet)

Unit and region	Sawtimber trees			Pole-timber trees	Total growing stock	Rough trees	Rotten trees	Total, all timber
	Sawlogs	Upper stems	Total					
SOUTHWESTERN:								
Lake Plain	591.1	130.9	722.0	737.7	1,459.7	142.0	113.8	1,715.5
Southwest Highlands	527.4	121.7	649.1	716.2	1,365.3	158.6	80.9	1,604.8
South-central Highlands	773.3	169.7	943.0	1,048.0	1,991.0	213.1	134.9	2,339.0
Total	1,891.8	422.3	2,314.1	2,501.9	4,816.0	513.7	329.6	5,659.3
NORTHERN:								
St. Lawrence-N. Adirondack	672.4	142.1	814.5	929.3	1,743.8	199.9	247.4	2,191.1
Western Adirondack	525.5	103.8	629.3	586.5	1,215.8	163.9	165.3	1,545.0
Eastern Adirondack	665.5	121.6	787.1	555.9	1,343.0	163.5	158.2	1,664.7
Total	1,863.4	367.5	2,230.9	2,071.7	4,302.6	527.3	570.9	5,400.8
SOUTHEASTERN:								
Capitol District	482.0	93.6	575.6	523.5	1,099.1	168.3	61.1	1,328.5
Catskill-Lower Hudson	781.1	167.1	948.2	1,033.9	1,982.1	276.0	106.6	2,364.7
Total	1,263.1	260.7	1,523.8	1,557.4	3,081.2	444.3	167.7	3,693.2
State total	5,018.3	1,050.5	6,068.8	6,131.0	12,199.8	1,485.3	1,068.2	14,753.3
Sampling errors, in percent								
Southwestern	—	—	3	3	2	5	5	2
Northern	—	—	2	2	1	4	4	1
Southeastern	—	—	3	3	2	4	6	2
State total	—	—	2	2	1	3	3	1

Table 36.—*Volume of growing stock on commercial forest land by ownership class, softwoods and hardwoods, geographic unit, and region, 1968*

(In millions of cubic feet)

Unit and region	State[1]			Forest industry			Other private			Total
	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	
SOUTHWESTERN:										
Lake Plain	35.2	58.9	94.1	4.2	15.8	20.0	150.8	1,194.8	1,345.6	1,459.7
Southwest Highlands	30.6	94.8	125.4	—	37.5	37.5	173.2	1,029.2	1,202.4	1,365.3
South-central Highlands	103.2	175.8	279.0	7.7	85.2	92.9	298.1	1,321.0	1,619.1	1,991.0
Total	169.0	329.5	498.5	11.9	138.5	150.4	622.1	3,545.0	4,167.1	4,816.0
NORTHERN:										
St. Lawrence-N. Adirondack	45.7	38.5	84.2	107.1	287.0	394.1	366.9	898.6	1,265.5	1,743.8
Western Adirondack	70.1	98.5	168.6	75.5	176.8	252.3	305.7	489.2	794.9	1,215.8
Eastern Adirondack	8.0	15.8	23.8	133.6	190.0	323.6	441.4	554.2	995.6	1,345.0
Total	123.8	152.8	276.6	316.2	653.8	970.0	1,114.0	1,942.0	3,056.0	4,302.6
SOUTHEASTERN:										
Capitol District	68.5	43.0	111.5	16.8	32.9	49.7	323.0	614.9	937.9	1,099.1
Catskill-Lower Hudson	37.3	74.4	111.7	—	11.0	11.0	378.1	1,481.3	1,859.4	1,982.1
Total	105.8	117.4	223.2	16.8	43.9	60.7	107.1	2,096.2	2,797.3	3,081.2
State total	398.6	599.7	998.3	344.9	836.2	1,181.1	2,437.2	7,583.2	10,020.4	12,199.8
Sampling errors, in percent										
Southwestern	—	—	12	52	27	26	9	3	3	2
Northern	—	—	14	12	8	7	6	4	3	1
Southeastern	—	—	20	46	46	27	7	3	2	2
State total	—	—	8	11	8	7	4	2	2	1

[1] Includes volume in other public ownerships—52.3 million cubic feet in the Southwestern Region, 69.8 million cubic feet in the Northern Region, and 95.0 million cubic feet in the Southeastern Region.

Table 37.—*Volume of sawtimber on commercial forest land by ownership class, softwoods and hardwoods, geographic unit, and region, 1968*

(In millions of board feet)[1]

Unit and region	State[2]			Forest industry			Other private			Total
	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	
Lake Plain	47.9	111.5	159.4	10.2	31.2	41.4	277.8	2,336.6	2,614.4	2,815.2
SOUTHWESTERN:										
Southwest Highlands	30.9	155.0	185.9	—	98.2	98.2	298.4	1,777.5	2,075.9	2,360.0
South-central Highlands	141.6	291.9	433.5	11.6	253.8	136.0	692.4	2,106.0	2,798.4	3,367.9
Total	220.4	558.4	778.8	21.8	253.8	275.6	1,268.6	6,220.1	7,488.7	8,543.1
NORTHERN:										
St. Lawrence-N. Adirondack	87.1	71.0	158.1	200.1	649.9	850.0	742.8	1,825.9	2,568.7	3,576.8
Western Adirondack	26.7	236.2	362.9	171.1	467.7	638.8	672.7	1,141.6	1,814.3	2,816.0
Eastern Adirondack	19.3	47.7	67.0	324.9	518.4	843.3	1,170.2	1,261.6	2,431.8	3,342.1
Total	233.1	354.9	588.0	696.1	1,636.0	2,332.1	2,585.7	4,229.1	6,814.8	9,734.9
SOUTHEASTERN:										
Capitol District	114.0	120.2	234.2	52.4	65.1	117.5	825.4	1,031.7	1,857.1	2,208.8
Catskill-Lower Hudson	26.9	162.3	189.2	—	6.3	6.3	954.4	2,771.7	3,726.1	3,921.6
Total	140.9	282.5	423.4	52.4	71.4	123.8	1,779.8	3,803.4	5,583.2	6,130.4
State total	594.4	1,195.8	1,790.2	770.3	1,961.2	2,731.5	5,634.1	14,252.6	19,886.7	24,408.4
Sampling errors, in percent										
Southwestern	—	—	14	58	32	30	10	4	3	2
Northern	—	—	18	14	9	8	6	5	4	2
Southeastern	—	—	23	50	30	29	7	4	3	2
State total	—	—	10	14	9	8	4	2	2	1

[1] International ¼-inch rule.

[2] Includes volume in other public ownerships—83.6 million board feet in the Southwestern Region, 154.6 million board feet in the Northern Region, and 179.4 million board feet in the Southeastern Region.

Table 38.—*Volume of growing stock on commercial forest land by stand-size class, softwoods and hardwoods, geographic unit, and region, 1968*

(In millions of cubic feet)

Unit and region[1]	Sawtimber stands			Poletimber stands			Other stands			Total
	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	
SOUTHWESTERN:										
Lake Plain	95.5	671.0	766.5	58.5	298.1	356.6	36.2	300.4	336.6	1,459.7
Southwest Highlands	93.7	528.8	622.5	71.2	329.4	400.6	38.9	303.3	342.2	1,365.3
South-central Highlands	247.9	687.1	935.0	116.5	606.9	723.4	44.6	288.0	332.6	1,991.0
Total	437.1	1,886.9	2,324.0	246.2	1,234.4	1,480.6	119.7	891.7	1,011.4	4,816.0
NORTHERN:										
St. Lawrence-N. Adirondack	200.2	606.5	806.7	163.5	362.3	525.8	156.0	255.3	411.3	1,743.8
Western Adirondack	244.3	430.8	675.1	113.1	183.5	296.6	93.9	150.2	244.1	1,215.8
Eastern Adirondack	416.7	500.5	917.2	86.0	152.7	238.7	80.3	106.8	187.1	1,343.0
Total	861.2	1,537.8	2,399.0	362.6	698.5	1,061.1	330.2	512.3	842.5	4,302.6
SOUTHEASTERN:										
Capitol District	275.1	350.3	625.4	80.6	187.9	268.5	52.6	152.6	205.2	1,099.1
Catskill-Lower Hudson	279.8	693.6	973.4	93.2	606.7	699.9	42.4	266.4	308.8	1,982.1
Total	554.9	1,043.9	1,598.8	173.8	794.6	968.4	95.0	419.0	514.0	3,081.2
State total	1,853.2	4,468.6	6,321.8	782.6	2,727.5	3,510.1	544.9	1,823.0	2,367.9	12,199.8
Sampling errors, in percent										
Southwestern	11	5	5	18	7	7	15	7	6	2
Northern	7	5	4	13	8	7	10	7	6	1
Southeastern	9	6	5	18	8	7	15	8	8	2
State total	5	3	2	9	5	5	7	4	5	1

[1] Estimates for the Southwestern Region were revised and are slightly different from the preliminary statistical tables.

Table 39.—*Volume of sawtimber on commercial forest land by stand-size class, softwoods and hardwoods, geographic unit, and region, 1968*

(In millions of board feet)[1]

Unit and region[2]	Sawtimber stands			Poletimber stands			Other stands			Total
	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods	Total	
SOUTHWESTERN:										
Lake Plain	227.3	1,683.3	1,910.6	57.2	360.2	417.4	51.4	435.8	487.2	2,815.2
Southwest Highlands	203.7	1,287.5	1,491.2	60.4	347.3	407.7	65.2	395.9	461.1	2,360.0
South-central Highlands	622.4	1,535.2	2,157.6	134.6	618.8	753.4	88.6	368.3	456.9	3,367.9
Total	1,053.4	4,506.0	5,559.4	252.2	1,326.3	1,578.5	205.2	1,200.0	1,405.2	8,543.1
NORTHERN:										
St. Lawrence-N. Adirondack	574.0	1,707.3	2,281.3	206.2	406.4	612.6	249.8	433.1	682.9	3,576.8
Western Adirondack	665.7	1,293.9	1,959.6	132.6	241.1	373.7	172.2	310.5	482.7	2,816.0
Eastern Adirondack	1,188.4	1,473.1	2,661.5	128.5	182.2	310.7	197.5	172.4	369.9	3,342.1
Total	2,428.1	4,474.3	6,902.4	467.3	829.7	1,297.0	619.5	916.0	1,535.5	9,734.9
SOUTHEASTERN:										
Capitol District	749.7	803.3	1,553.0	117.0	170.8	287.8	125.1	242.9	368.0	2,208.8
Catskill-Lower Hudson	769.0	1,861.8	2,630.8	122.3	647.8	770.1	90.0	430.7	520.7	3,921.6
Total	1,518.7	2,665.1	4,183.8	239.3	818.6	1,057.9	215.1	673.6	888.7	6,130.4
State total	5,000.2	11,645.4	16,645.6	958.8	2,974.6	3,933.4	1,039.8	2,789.6	3,829.4	24,408.4
Sampling errors, in percent										
Southwestern	16	5	4	17	9	9	20	9	8	2
Northern	7	4	3	15	11	9	11	10	8	2
Southeastern	9	6	4	16	11	10	18	11	10	2
State total	5	3	2	9	6	5	9	6	5	1

[1] International ¼-inch rule.
[2] Estimates for the Southwestern Region were revised and are slightly different from those in the preliminary statistical tables.

Table 40.—*Volume of growing stock on commercial forest land by forest type, geographic unit, and region, 1968*

(In millions of cubic feet)

Unit and region	White or red pine	Spruce-fir	Plantation	Oak-pine	Oak-hickory	Elm-ash-red maple	Maple-beech-birch	Aspen-paper birch	Total
SOUTHWESTERN:									
Lake Plain	67.4	16.7	76.1	—	156.0	533.1	584.6	25.8	1,459.7
Southwest Highlands	86.8	6.2	65.2	37.1	180.1	242.6	715.2	32.1	1,365.3
South-central Highlands	274.0	2.3	158.0	58.3	163.3	420.3	869.1	45.7	1,991.0
Total	428.2	25.2	299.3	95.4	499.4	1,196.0	2,168.9	103.6	4,816.0
NORTHERN:									
St. Lawrence-N. Adirondack	163.3	232.2	94.6	9.7	17.6	381.2	725.4	119.8	1,743.8
Western Adirondack	145.0	130.7	55.7	5.6	21.4	261.7	530.3	65.4	1,215.8
Eastern Adirondack	242.5	221.4	23.2	44.0	44.9	85.0	565.2	116.8	1,343.0
Total	550.8	584.3	173.5	59.3	83.9	727.9	1,820.9	302.0	4,302.6
SOUTHEASTERN:									
Capitol District	321.5	5.7	65.8	50.8	161.9	192.6	274.1	26.7	1,099.1
Catskill-Lower Hudson	306.8	.8	82.1	101.6	690.8	418.5	380.1	1.4	1,982.1
Total	628.3	6.5	147.9	152.4	852.7	611.1	654.2	28.1	3,081.2
State total	1,607.3	616.0	620.7	307.1	1,436.0	2,535.0	4,644.0	433.7	12,199.8
Sampling errors, in percent									
Southwestern	15	(*)	19	35	13	8	5	20	2
Northern	11	10	23	36	27	9	5	14	1
Southeastern	10	(*)	25	21	8	8	9	34	2
State total	7	10	13	17	6	5	3	11	1

* Sampling error is greater than 50 percent.

Table 41.—*Volume of sawtimber on commercial forest land by forest type, geographic unit, and region, 1968*

(In millions of board feet)[1]

Unit and region	White or red pine	Spruce-fir	Plantation	Oak-pine	Oak-hickory	Elm-ash-red maple	Maple-beech-birch	Aspen-paper birch	Total
SOUTHWESTERN:									
Lake Plain	165.4	27.9	82.0	—	324.4	986.8	1,197.7	31.0	2,815.2
Southwest Highlands	154.9	6.0	34.7	71.8	341.3	406.5	1,298.8	46.0	2,360.0
South-central Highlands	599.7	—	266.3	58.4	261.6	551.3	1,587.0	43.6	3,367.9
Total	920.0	33.9	383.0	130.2	927.3	1,944.6	4,083.5	120.6	8,543.1
NORTHERN:									
St. Lawrence-N. Adirondack	475.6	357.0	113.7	23.6	39.0	725.7	1,693.5	148.7	3,576.8
Western Adirondack	331.6	256.4	69.3	12.7	31.4	564.6	1,424.6	125.4	2,816.0
Eastern Adirondack	657.0	513.0	92.7	127.2	50.2	118.6	1,510.2	273.2	3,342.1
Total	1,464.2	1,126.4	275.7	163.5	120.6	1,408.9	4,628.3	547.3	9,734.9
SOUTHEASTERN:									
Capitol District	790.1	12.0	87.9	114.5	355.0	294.7	535.5	19.1	2,208.8
Catskill-Lower Hudson	792.4	—	72.5	186.0	1,443.6	700.8	726.3	—	3,921.6
Total	1,582.5	12.0	160.4	300.5	1,798.6	995.5	1,261.8	19.1	6,130.4
State total	3,966.7	1,172.3	819.1	594.2	2,846.5	4,349.0	9,973.6	687.0	24,408.4
Sampling errors, in percent									
Southwestern	16	(*)	24	39	15	9	6	29	2
Northern	12	12	29	39	30	10	5	17	2
Southeastern	10	(*)	30	22	9	11	10	47	2
State total	7	12	16	18	8	6	4	15	1

* Sampling error is greater than 50 percent.
[1] International ¼-inch rule.

Table 42.—*Growing-stock volume in the LAKE PLAIN UNIT, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	60.6	15.1	16.3	8.3	4.6	2.4	5.9	4.3	2.5	1.2	—
Red pine	34.4	9.7	8.5	14.8	1.4	—	—	—	—	—	—
Hemlock	73.5	17.6	16.7	9.0	10.8	6.3	4.5	3.6	2.2	1.8	1.0
Other softwoods	21.7	5.8	10.6	2.7	2.6	—	—	—	—	—	—
Total softwoods	190.2	48.2	52.1	34.8	19.4	8.7	10.4	7.9	4.7	3.0	1.0
Select white oaks	23.8	2.8	1.0	2.1	2.3	5.6	.9	4.2	1.8	1.4	1.7
Select red oaks	58.5	2.4	3.4	4.3	8.3	12.6	6.3	6.1	2.0	9.2	3.9
Hickory	82.8	19.7	19.7	13.3	11.1	7.5	3.3	2.6	4.3	1.3	—
Yellow birch	25.3	5.6	7.5	5.8	2.3	2.2	.4	—	.8	.7	—
Sugar maple	275.1	39.0	51.5	51.0	38.9	33.1	25.7	18.8	8.2	8.9	—
Soft maples	211.6	36.0	37.6	45.8	29.7	23.9	12.6	12.4	6.4	5.5	1.7
Beech	67.4	9.2	9.5	12.6	10.7	7.8	8.3	3.8	3.6	1.9	—
Ash	129.8	25.1	26.3	23.6	21.7	15.2	8.1	4.8	2.5	2.5	—
Basswood	119.3	9.8	17.4	22.7	14.8	14.7	19.1	13.0	3.1	4.7	—
Aspen	37.1	9.4	11.3	8.3	2.9	2.0	1.5	.7	.4	.6	—
Black cherry	55.9	7.5	11.1	7.1	13.1	6.5	3.2	3.6	1.9	1.9	—
Elm	130.9	16.3	19.2	19.7	19.4	13.6	16.1	10.2	3.2	10.4	2.8
Other hardwoods[1]	52.0	3.6	8.4	11.2	6.9	5.8	5.5	4.5	3.7	2.4	.4
Total hardwoods	1,269.5	186.4	223.5	227.5	182.1	150.5	111.0	84.7	41.9	51.4	10.5
All species	1,459.7	234.6	275.6	262.3	201.5	159.2	121.4	92.6	46.6	54.4	11.5

[1] Includes 5,000,000 cubic feet of oak (not select species) and 18,300,000 cubic feet of yellow-poplar.

Table 43.—*Sawtimber volume in the LAKE PLAIN UNIT, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	117.9	25.0	15.6	9.7	25.9	20.6	13.7	7.4	—
Red pine	51.4	46.6	4.8	—	—	—	—	—	—
Hemlock	150.1	28.1	36.2	23.3	18.8	16.5	11.1	9.7	6.4
Other softwoods	16.5	8.0	8.5	—	—	—	—	—	—
Total softwoods	335.9	107.7	65.1	33.0	44.7	37.1	24.8	17.1	6.4
Select white oaks	71.2	—	8.2	21.2	3.5	17.1	8.0	6.1	7.1
Select red oaks	191.5	—	29.4	47.7	24.0	25.1	8.4	39.9	17.0
Hickory	115.7	—	39.3	28.5	13.2	10.7	18.8	5.2	—
Yellow birch	25.0	—	8.3	8.6	1.6	—	3.3	3.2	—
Sugar maple	520.6	—	138.3	125.2	102.0	79.3	35.2	40.6	—
Soft maples	366.7	—	106.2	92.6	51.3	54.2	27.8	26.4	8.2
Beech	143.9	—	38.7	30.0	33.6	16.8	16.1	8.7	—
Ash	207.7	—	77.0	57.6	31.9	19.9	10.4	10.9	—
Basswood	275.8	—	52.9	56.0	76.8	55.7	13.4	21.0	—
Aspen	30.8	—	10.4	7.5	6.1	2.4	1.9	2.5	—
Black cherry	116.7	—	46.6	24.7	13.0	15.3	8.5	8.6	—
Yellow-poplar	45.0	—	12.7	7.5	7.9	8.4	4.2	4.3	—
Elm	299.3	—	68.5	51.3	63.6	43.3	13.7	47.0	11.9
Other hardwoods	69.4	—	12.1	13.9	13.2	10.4	11.3	6.5	2.0
Total hardwoods	2,479.3	—	648.6	572.3	441.7	358.6	181.0	230.9	46.2
All species	2,815.2	107.7	713.7	605.3	486.4	395.7	205.8	248.0	52.6

[1] International ¼-inch rule.

Table 44.—*Growing-stock volume in the SOUTHWEST HIGHLANDS UNIT, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	27.6	3.0	6.1	7.2	3.5	2.9	2.3	1.0	0.5	0.7	0.4
Red pine	49.6	28.0	13.4	4.6	2.5	.8	.3	—	—	—	—
Hemlock	117.0	23.6	27.7	18.9	16.4	11.0	7.7	5.1	3.8	2.3	.5
Other softwoods	9.6	3.8	5.0	.4	.4	—	—	—	—	—	—
Total softwoods	203.8	58.4	52.2	31.1	22.8	14.7	10.3	6.1	4.3	3.0	.9
Select white oaks	50.8	5.7	7.4	6.5	10.4	9.8	5.1	4.2	—	1.7	—
Select red oaks	138.7	6.0	15.8	26.4	27.2	26.3	16.5	11.9	6.6	2.0	—
Other oaks	15.7	1.1	3.9	4.9	2.3	1.4	1.3	.5	—	.3	—
Hickory	29.7	5.5	5.6	4.6	7.2	5.3	1.5	—	—	—	—
Yellow birch	14.6	2.3	3.4	4.1	2.8	1.2	.4	.4	—	—	—
Sugar maple	316.6	57.8	55.1	44.9	56.2	34.4	27.7	14.8	10.0	14.7	1.0
Soft maples	179.2	33.4	38.4	34.1	22.8	16.5	12.4	10.3	3.3	8.0	—
Beech	118.9	14.8	22.5	26.5	16.2	20.1	11.2	3.8	2.0	1.8	—
Ash	80.1	16.8	19.1	13.4	11.4	7.7	5.2	3.2	—	2.7	.6
Basswood	52.7	4.6	8.4	9.7	9.0	9.6	5.6	1.5	3.0	1.3	—
Aspen	50.1	12.5	19.5	10.6	6.0	.5	—	—	.6	—	.4
Black cherry	46.4	5.3	10.6	8.9	6.9	5.5	4.0	2.7	.9	1.6	—
Elm	38.5	5.0	4.5	6.3	4.4	7.1	3.6	1.6	1.8	2.3	1.9
Other hardwoods	29.5	7.8	8.0	3.9	4.0	.8	1.5	1.2	.4	1.5	.4
Total hardwoods	1,161.5	178.6	222.2	204.8	186.8	146.2	96.0	56.1	28.6	37.9	4.3
All species	1,365.3	237.0	274.4	235.9	209.6	160.9	106.3	62.2	32.9	40.9	5.2

Table 45.—*Sawtimber volume in the SOUTHWEST HIGHLANDS UNIT, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	65.4	20.7	10.9	10.1	9.6	5.0	2.6	4.0	2.5
Red pine	25.9	13.6	7.9	3.1	1.3	—	—	—	—
Hemlock	235.6	55.0	52.1	40.3	31.5	22.1	18.7	12.9	3.0
Other softwoods	2.4	1.1	1.3	—	—	—	—	—	—
Total softwoods	329.3	90.4	72.2	53.5	42.4	27.1	21.3	16.9	5.5
Select white oaks	112.6	—	34.7	34.6	18.9	16.8	—	7.6	—
Select red oaks	326.8	—	91.0	92.9	61.0	46.8	26.9	8.2	—
Other oaks	21.3	—	7.5	5.1	5.1	2.0	—	1.6	—
Hickory	47.9	—	23.7	18.6	5.6	—	—	—	—
Yellow birch	16.8	—	9.5	4.4	1.4	1.5	—	—	—
Sugar maple	579.4	—	188.0	122.7	104.0	59.2	39.9	61.7	3.9
Soft maples	272.5	—	77.0	59.5	46.8	40.6	13.8	34.8	—
Beech	203.4	—	55.1	73.2	43.0	15.4	8.6	8.1	—
Ash	112.4	—	38.3	28.0	19.8	12.9	—	11.0	2.4
Basswood	110.8	—	30.9	34.2	21.4	5.9	12.9	5.5	—
Aspen	26.0	—	20.2	1.9	—	—	2.2	—	1.7
Black cherry	78.7	—	23.3	19.1	14.8	11.0	3.9	6.6	—
Elm	85.3	—	14.9	25.3	13.6	6.7	7.3	9.3	8.2
Other hardwoods	36.8	—	13.0	2.8	5.7	5.1	1.7	6.7	1.8
Total hardwoods	2,030.7	—	627.1	522.3	361.1	223.9	117.2	161.1	18.0
All species	2,360.0	90.4	699.3	575.8	403.5	251.0	138.5	178.0	23.5

[1] International ¼-inch rule.

Table 46.—*Growing-stock volume in the SOUTH-CENTRAL HIGHLANDS UNIT, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	117.7	19.8	29.6	12.8	12.4	12.1	10.6	5.9	6.0	7.5	1.0
Red pine	62.9	16.8	15.1	17.5	9.8	2.0	.8	.9	—	—	—
Hemlock	209.4	38.4	37.8	33.1	37.9	22.4	17.6	12.3	6.5	2.9	.5
Other softwoods	19.0	7.0	4.5	4.1	3.4	—	—	—	—	—	—
Total softwoods	409.0	82.0	87.0	67.5	63.5	36.5	29.0	19.1	12.5	10.4	1.5
Select white oaks	18.1	2.1	1.4	2.7	5.2	1.9	2.3	.5	.5	.5	1.0
Select red oaks	140.8	10.5	23.3	23.8	19.0	17.6	23.2	7.5	6.1	9.3	.5
Other oaks	38.2	2.4	6.9	8.3	4.9	3.1	4.4	3.6	.6	4.0	—
Hickory	26.7	4.1	4.9	6.2	.7	5.4	2.7	—	1.3	1.4	—
Yellow birch	25.2	6.1	5.3	6.7	1.3	2.1	.2.1	.5	.4	.7	—
Sweet birch	36.3	12.9	9.2	8.3	3.8	—	1.7	—	.4	—	—
Sugar maple	418.6	63.1	72.9	90.4	78.6	54.5	18.3	15.2	10.4	11.2	4.0
Soft maples	369.0	81.4	81.0	89.0	52.5	27.5	18.5	10.2	3.2	4.6	1.1
Beech	143.2	16.3	28.2	21.9	33.6	20.0	12.1	7.3	2.9	.9	—
Ash	117.6	20.8	18.8	21.9	22.4	13.1	8.0	3.9	3.3	4.9	.5
Basswood	83.0	2.9	8.6	16.6	18.0	13.8	14.7	2.0	4.4	2.0	—
Aspen	67.3	16.6	21.4	17.3	6.7	4.1	1.2	—	—	—	—
Black cherry	38.6	5.7	6.8	6.9	5.2	6.1	2.6	2.0	1.5	1.8	—
Elm	38.7	4.1	5.3	6.2	4.4	2.3	3.5	3.3	2.6	4.8	2.2
Other hardwoods	20.7	3.7	2.2	3.9	2.7	2.8	.9	1.1	1.4	2.0	—
Total hardwoods	1,582.0	252.7	296.2	330.1	259.0	174.3	116.2	57.1	39.0	48.1	9.3
All species	1,991.0	334.7	383.2	397.6	322.5	210.8	145.2	76.2	51.5	58.5	10.8

Table 47.—*Sawtimber volume in the SOUTH-CENTRAL HIGHLANDS UNIT, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	260.4	35.8	38.5	42.8	41.3	25.2	28.9	41.9	6.0
Red pine	98.0	51.9	30.7	8.0	3.2	4.2	—	—	—
Hemlock	464.4	96.4	118.0	79.1	68.0	53.1	31.1	15.9	2.8
Other softwoods	22.8	12.1	10.7	—	—	—	—	—	—
Total softwoods	845.6	196.2	197.9	129.9	112.5	82.5	60.0	57.8	8.8
Select white oaks	42.3	—	17.1	6.3	8.6	1.9	2.0	2.3	4.1
Select red oaks	301.9	—	61.7	61.4	85.1	29.0	24.5	38.0	2.2
Other oaks	75.7	—	16.5	11.0	15.5	14.1	2.4	16.2	—
Hickory	41.7	—	2.2	18.7	9.9	—	5.2	5.7	—
Yellow birch	26.3	—	4.2	7.6	7.8	1.8	1.6	3.3	—
Sweet birch	20.4	—	12.5	—	6.3	—	1.6	—	—
Sugar maple	683.8	—	259.9	189.3	67.5	60.0	41.7	48.2	17.2
Soft maples	420.8	—	174.1	98.4	69.1	41.2	14.0	19.5	4.5
Beech	274.1	—	112.0	71.8	45.1	29.1	12.1	4.0	—
Ash	199.2	—	73.5	45.7	29.1	14.8	13.0	20.6	2.5
Basswood	197.3	—	59.5	49.0	54.3	8.3	17.6	8.6	—
Aspen	40.9	—	21.9	14.5	4.5	—	—	—	—
Black cherry	69.5	—	17.3	21.4	9.7	7.9	6.0	7.2	—
Elm	88.4	—	14.5	7.8	13.1	12.9	10.5	19.9	9.7
Other hardwoods	40.0	—	8.9	9.6	3.4	4.0	5.8	8.3	—
Total hardwoods	2,522.3	—	855.8	612.5	429.0	225.0	158.0	201.8	40.2
All species	3,367.9	196.2	1,053.7	742.4	541.5	307.5	218.0	259.6	49.0

[1] International ¼-inch rule.

Table 48.—*Growing-stock volume in the SOUTHWESTERN REGION, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	205.9	37.9	52.0	28.3	20.5	17.4	18.8	11.2	9.0	9.4	1.4
Red pine	146.9	54.5	37.0	36.9	13.7	2.8	1.1	.9	—	—	—
Hemlock	399.9	79.6	82.2	61.0	65.1	39.7	29.8	21.0	12.5	7.0	2.0
Other softwoods	50.3	16.6	20.1	7.2	6.4	—	—	—	—	—	—
Total softwoods	803.0	188.6	191.3	133.4	105.7	59.9	49.7	33.1	21.5	16.4	3.4
Select white oaks	92.7	10.6	9.8	11.3	17.9	17.3	8.3	8.9	2.3	3.6	2.7
Select red oaks	338.0	18.9	42.5	54.5	54.5	56.5	46.0	25.5	14.7	20.5	4.4
Other oaks	58.9	3.5	11.2	13.2	7.2	4.5	6.9	5.1	2.4	4.9	—
Hickory	139.2	29.3	30.2	24.1	19.0	18.2	7.5	2.6	5.6	2.7	—
Yellow birch	65.1	14.0	16.2	16.6	6.4	5.5	2.9	.9	1.2	1.4	—
Sweet birch	58.6	18.2	17.2	13.4	6.1	—	2.9	.4	.4	—	—
Sugar maple	1,010.3	159.9	179.5	186.3	173.7	122.0	71.7	48.8	28.6	34.8	5.0
Soft maples	759.8	150.8	157.0	168.9	105.0	67.9	43.5	32.9	12.9	18.1	2.8
Beech	329.5	40.3	60.2	61.0	60.5	47.9	31.6	14.9	8.5	4.6	—
Ash	327.5	62.7	64.2	58.9	55.5	36.0	21.3	11.9	5.8	10.1	1.1
Basswood	255.0	17.3	34.4	49.0	41.8	38.1	39.4	16.5	10.5	8.0	—
Aspen	154.5	38.5	52.2	36.2	15.6	6.6	2.7	.7	1.0	.6	.4
Black cherry	140.9	18.5	28.5	22.9	25.2	18.1	9.8	8.3	4.3	5.3	—
Elm	208.1	25.4	29.0	32.2	28.2	23.0	23.2	15.1	7.6	17.5	6.9
Other hardwoods	74.9	9.8	9.8	13.9	11.3	9.4	5.5	5.4	3.7	5.3	.8
Total hardwoods	4,013.0	617.7	741.9	762.4	627.9	471.0	323.2	197.9	109.5	137.4	24.1
All species	4,816.0	806.3	933.2	895.8	733.6	530.9	372.9	231.0	131.0	153.8	27.5

Table 49.—*Sawtimber volume in the SOUTHWESTERN REGION, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	443.7	81.5	65.0	62.6	76.8	50.8	45.2	53.3	8.5
Red pine	175.3	112.1	43.4	11.1	4.5	4.2	—	—	—
Hemlock	850.1	179.5	206.3	142.7	118.3	91.7	60.9	38.5	12.2
Other softwoods	41.7	21.2	20.5	—	—	—	—	—	—
Total softwoods	1,510.8	394.3	335.2	216.4	199.6	146.7	106.1	91.8	20.7
Select white oaks	226.1	—	60.0	62.1	31.0	35.8	10.0	16.0	11.2
Select red oaks	820.2	—	182.1	202.0	170.1	100.9	59.8	86.1	19.2
Other oaks	116.1	—	24.0	16.1	25.4	20.4	9.8	20.4	—
Hickory	205.3	—	65.2	65.8	28.7	10.7	24.0	10.9	—
Yellow birch	68.1	—	22.0	20.6	10.8	3.3	4.9	6.5	—
Sweet birch	34.6	—	20.5	—	10.7	1.8	1.6	—	—
Sugar maple	1,783.8	—	586.2	437.2	273.5	198.5	116.8	150.5	21.1
Soft maples	1,060.0	—	357.3	250.5	167.2	136.0	55.6	80.7	12.7
Beech	621.4	—	205.8	175.0	121.7	61.3	36.8	20.8	—
Ash	519.3	—	188.8	131.3	80.8	47.6	23.4	42.5	4.9
Basswood	583.9	—	143.3	139.2	152.5	69.9	43.9	35.1	—
Aspen	97.7	—	52.5	23.9	10.6	2.4	4.1	2.5	1.7
Black cherry	264.9	—	87.2	65.2	37.5	34.2	18.4	22.4	—
Elm	473.0	—	97.9	84.4	90.3	62.9	31.5	76.2	29.8
Other hardwoods	157.9	—	38.7	33.8	21.0	21.8	15.6	23.2	3.8
Total hardwoods	7,032.3	—	2,131.5	1,707.1	1,231.8	807.5	456.2	593.8	104.4
All species	8,543.1	394.3	2,466.7	1,923.5	1,431.4	954.2	562.3	685.6	125.1

[1] International ¼-inch rule.

Table 50.—*Growing-stock volume in the ST. LAWRENCE-NORTHERN ADIRONDACK UNIT, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	84.0	15.9	13.8	13.7	16.9	10.8	5.0	1.7	2.3	3.3	0.6
Red pine	59.1	20.9	13.3	8.7	10.0	3.5	2.1	—	.6	—	—
Spruce	130.6	47.9	29.4	25.8	18.0	6.6	1.7	1.2	—	—	—
Balsam fir	71.0	25.6	24.5	12.3	7.4	.6	.6	—	—	—	—
Hemlock	99.2	14.8	11.2	13.0	15.1	7.6	10.9	10.1	9.5	7.0	—
Other softwoods	75.8	24.2	21.8	14.6	5.4	5.4	2.1	1.1	1.2	—	—
Total softwoods	519.7	149.3	114.0	88.1	72.8	34.5	22.4	14.1	13.6	10.3	.6
Select red oaks	26.2	1.4	8.1	2.0	3.5	3.4	2.5	3.1	—	2.2	—
Yellow birch	84.5	11.7	12.4	10.8	12.7	9.0	8.1	10.8	4.3	3.9	.8
Paper birch	42.3	10.2	13.8	7.7	5.6	2.8	.8	.5	.5	.4	—
Sugar maple	329.0	61.5	61.3	63.0	43.7	34.1	21.1	20.3	10.2	13.2	.6
Soft maples	258.9	54.9	66.0	51.9	33.6	20.2	11.1	10.5	3.0	6.7	1.0
Beech	136.6	19.7	17.0	16.2	18.5	18.5	18.8	13.1	12.0	2.8	—
Ash	49.7	7.5	11.2	13.4	8.4	4.7	.4	1.5	1.5	1.1	—
Aspen	102.8	18.8	20.8	24.0	22.7	9.0	4.7	1.8	1.0	—	—
Basswood	47.7	3.3	6.6	11.6	8.3	7.0	5.9	.6	.6	3.0	.8
Black cherry	50.1	5.1	5.0	7.9	8.4	14.7	5.2	2.4	.9	.5	—
Elm	79.2	6.4	11.0	15.6	12.1	8.4	5.3	6.8	6.0	7.1	.5
Other hardwoods	17.1	5.3	1.1	1.8	.9	1.8	1.0	—	1.1	3.1	1.0
Total hardwoods	1,224.1	205.8	234.3	225.9	178.4	133.6	84.9	71.4	41.1	44.0	4.7
All species	1,743.8	355.1	348.3	314.0	251.2	168.1	107.3	85.5	54.7	54.3	5.3

Table 51.—*Sawtimber volume in the ST. LAWRENCE-NORTHERN ADIRONDACK UNIT, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	209.4	54.1	63.8	41.2	18.7	7.3	8.3	14.0	2.0
Red pine	100.5	35.3	41.5	13.7	7.7	—	2.3	—	—
Spruce	208.8	103.6	69.2	25.1	6.9	4.0	—	—	—
Balsam fir	87.9	52.3	30.7	2.5	2.4	—	—	—	—
Hemlock	304.9	52.8	58.0	27.5	42.1	42.2	45.4	36.9	—
Other softwoods	118.5	57.8	20.9	20.9	8.4	5.0	5.5	—	—
Total softwoods	1,030.0	355.9	284.1	130.9	86.2	58.5	61.5	50.9	2.0
Select red oaks	66.4	—	14.7	15.5	11.6	14.1	—	10.5	—
Yellow birch	227.3	—	52.5	39.9	38.0	50.3	21.6	21.2	3.8
Paper birch	47.1	—	23.6	12.6	3.9	2.4	2.7	1.9	—
Sugar maple	653.0	—	185.5	153.7	98.4	93.3	51.0	67.8	3.3
Soft maples	393.2	—	146.5	89.9	51.5	48.7	15.5	34.3	6.8
Beech	383.4	—	80.2	83.2	88.0	59.1	59.0	13.9	—
Ash	77.5	—	34.1	20.7	2.1	7.4	7.6	5.6	—
Aspen	174.4	—	98.7	40.1	22.3	7.7	5.6	—	—
Basswood	119.0	—	32.6	30.7	27.0	3.1	3.2	17.4	5.0
Black cherry	144.4	—	36.2	64.9	24.0	11.8	4.2	3.3	—
Elm	218.0	—	49.8	36.6	24.5	33.4	31.0	39.5	3.2
Other hardwoods	43.1	—	4.2	7.8	4.7	—	5.3	16.3	4.8
Total hardwoods	2,546.8	—	758.6	595.6	396.0	331.3	206.7	231.7	26.9
All species	3,576.8	355.9	1,042.7	726.5	482.2	389.8	268.2	282.6	28.9

[1] International ¼-inch rule.

Table 52.—*Growing-stock volume in the WESTERN ADIRONDACK UNIT, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	94.8	19.4	16.8	7.5	9.3	8.6	8.5	7.8	5.4	10.2	1.3
Red pine	32.2	8.7	13.2	8.5	1.6	—	.2	—	—	—	—
Spruce	119.6	34.1	20.0	18.2	15.6	11.6	10.0	5.1	2.8	2.2	—
Balsam fir	28.6	12.5	9.4	3.1	2.4	1.2	—	—	—	—	—
Hemlock	148.3	27.6	31.4	25.0	21.9	16.2	9.0	8.0	3.5	5.7	—
Other softwoods	27.8	10.7	11.4	3.1	1.1	.9	.6	—	—	—	—
Total softwoods	451.3	113.0	102.2	65.4	51.9	38.5	28.3	20.9	11.7	18.1	1.3
Select red oaks	25.4	2.1	3.1	6.7	5.3	4.0	1.5	.8	.7	1.2	—
Yellow birch	92.0	9.0	12.3	15.8	14.9	11.5	10.8	7.5	4.1	5.0	1.1
Sugar maple	173.6	26.9	32.6	31.5	22.6	18.8	14.3	10.6	5.8	10.2	.3
Soft maples	156.1	29.0	31.6	32.8	25.6	15.6	10.9	4.9	3.9	1.8	—
Beech	103.1	10.5	13.5	11.2	11.7	15.8	17.9	12.4	5.3	4.8	—
Ash	41.2	6.2	6.9	8.3	5.6	5.4	4.1	2.5	1.1	1.1	—
Aspen	42.4	6.1	8.9	9.7	7.0	5.2	2.9	1.9	.7	—	—
Basswood	15.9	.8	3.6	2.9	4.1	.8	1.5	.7	1.0	.5	—
Black cherry	52.3	6.1	7.0	9.0	8.5	8.6	6.8	3.9	1.1	1.3	—
Elm	37.9	5.3	3.4	4.2	5.4	5.1	3.6	1.4	3.5	3.9	2.1
Other hardwoods	24.6	5.0	6.0	3.3	2.0	2.3	1.4	1.7	.6	1.7	.6
Total hardwoods	764.5	107.0	128.9	135.4	112.7	93.1	75.7	48.3	27.8	31.5	4.1
All species	1,215.8	220.0	231.1	200.8	164.6	131.6	104.0	69.2	39.5	49.6	5.4

Table 53.—*Sawtimber volume in the WESTERN ADIRONDACK UNIT, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	246.3	31.0	37.5	34.0	33.5	31.7	24.4	47.4	6.8
Red pine	43.9	36.3	7.0	—	.6	—	—	—	—
Spruce	266.5	76.2	61.9	44.3	39.0	21.3	12.5	11.3	—
Balsam fir	27.8	13.2	10.2	4.4	—	—	—	—	—
Hemlock	363.5	101.0	85.3	61.7	34.7	35.2	16.7	28.9	—
Other softwoods	22.5	12.0	4.5	3.6	2.4	—	—	—	—
Total softwoods	970.5	269.7	206.4	148.0	110.2	88.2	53.6	87.6	6.8
Select red oaks	63.9	—	23.0	18.6	7.2	3.5	4.1	7.5	—
Yellow birch	255.8	—	64.2	51.4	51.3	35.2	21.5	26.1	6.1
Sugar maple	390.3	—	97.2	86.0	68.0	51.8	29.7	55.3	2.3
Soft maples	294.3	—	114.6	73.9	51.7	23.6	20.1	10.4	—
Beech	319.2	—	50.1	72.9	85.7	58.1	26.5	25.9	—
Ash	90.6	—	23.9	23.4	19.0	12.6	6.1	5.6	—
Aspen	80.6	—	30.5	23.6	13.9	8.8	3.8	—	—
Basswood	40.4	—	18.4	4.0	7.0	3.1	5.7	2.2	—
Black cherry	139.0	—	37.0	38.2	32.5	17.9	5.3	8.1	—
Elm	122.0	—	22.4	22.9	17.1	6.5	18.0	23.6	11.5
Other hardwoods	49.4	—	8.6	10.9	6.4	7.8	2.8	10.1	2.8
Total hardwoods	1,845.5	—	489.9	425.8	359.8	228.9	143.6	174.8	22.7
All species	2,816.0	269.7	696.3	573.8	470.0	317.1	197.2	262.4	29.5

[1] International ¼-inch rule.

Table 54.—*Growing-stock volume in the EASTERN ADIRONDACK UNIT, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	186.0	16.9	19.2	20.3	25.7	20.9	26.1	16.8	17.8	16.7	5.6
Red pine	11.4	1.1	.9	3.6	2.0	.5	1.8	—	1.0	.5	—
Spruce	169.9	43.2	31.2	28.4	15.3	18.7	12.8	11.4	6.0	2.9	—
Balsam fir	75.8	25.4	24.6	13.8	9.0	2.5	—	—	.5	—	—
Hemlock	124.7	15.8	18.4	16.7	23.4	17.3	9.6	6.6	4.8	10.7	1.4
Other softwoods	15.2	2.8	4.2	3.5	1.6	.4	2.7	—	—	—	—
Total softwoods	583.0	105.2	98.5	86.3	77.0	60.3	53.0	34.8	30.1	30.8	7.0
Select red oaks	65.8	10.9	10.6	17.0	10.3	6.2	4.6	3.8	.9	1.5	—
Yellow birch	107.7	7.4	10.7	16.2	14.2	19.3	12.1	7.9	6.4	11.0	2.5
Paper birch	76.6	11.2	17.3	17.2	11.9	11.5	3.0	2.9	1.2	.4	—
Sugar maple	192.1	23.7	20.8	29.6	26.9	29.7	20.9	18.9	7.4	12.9	1.3
Soft maples	75.9	16.2	16.9	16.6	8.1	5.0	7.2	2.1	1.8	2.0	—
Beech	118.6	12.9	16.3	20.9	17.6	18.2	14.3	9.5	4.4	4.5	—
Ash	28.8	4.2	3.9	7.4	7.8	2.1	2.1	.4	.9	—	—
Aspen	52.2	6.6	6.0	12.6	12.5	10.8	1.7	1.7	.3	—	—
Basswood	15.0	.9	2.4	3.8	2.6	1.9	.5	2.4	.5	—	—
Other hardwoods[1]	27.3	3.3	3.6	5.1	2.9	6.9	3.6	.4	.8	.7	—
Total hardwoods	760.0	97.3	108.5	146.4	114.8	111.6	70.0	50.0	24.6	33.0	3.8
All species	1,343.0	202.5	207.0	232.7	191.8	171.9	123.0	84.8	54.7	63.8	10.8

[1] Includes 7,900,000 cubic feet of black cherry and 7,100,000 cubic feet of elm.

Table 55.—*Sawtimber volume in the EASTERN ADIRONDACK UNIT, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	608.7	76.4	97.0	77.3	98.5	69.8	82.3	81.7	25.7
Red pine	37.5	14.2	8.1	1.9	6.7	—	3.7	2.9	—
Spruce	376.6	114.3	58.7	69.4	47.7	47.0	24.8	14.7	—
Balsam fir	102.9	56.5	35.5	9.2	—	—	1.7	—	—
Hemlock	357.6	64.8	86.5	62.1	36.7	28.1	21.7	51.0	6.7
Other softwoods	31.1	13.6	6.2	1.3	10.0	—	—	—	—
Total softwoods	1,514.4	339.8	292.0	221.2	199.6	144.9	134.2	150.3	32.4
Select red oaks	119.9	—	42.3	26.7	21.1	17.9	4.5	7.4	—
Yellow birch	336.3	—	58.0	84.4	55.1	36.0	32.8	57.3	12.7
Paper birch	132.3	—	48.0	49.6	13.6	13.3	6.2	1.6	—
Sugar maple	537.7	—	116.2	132.6	96.3	85.6	34.9	64.1	8.0
Soft maples	116.9	—	34.9	22.2	32.9	8.8	8.5	9.6	—
Beech	306.5	—	73.0	81.9	65.7	42.1	20.8	23.0	—
Ash	57.2	—	32.4	8.9	9.2	1.9	4.8	—	—
Aspen	117.5	—	52.4	48.0	7.9	7.6	1.6	—	—
Basswood	34.8	—	11.2	8.3	2.3	10.2	2.8	—	—
Other hardwoods[2]	68.6	—	12.4	29.5	16.6	1.9	4.2	4.0	—
Total hardwoods	1,827.7	—	480.8	492.1	320.7	225.3	121.1	167.0	20.7
All species	3,342.1	339.8	772.8	713.3	520.3	370.2	255.3	317.3	53.1

[1] International ¼-inch rule.
[2] Includes 21,000,000 board feet of black cherry and 14,500,000 board feet of elm.

Table 56.—*Growing-stock volume in the NORTHERN REGION, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	364.8	52.2	49.8	41.5	51.9	40.3	39.6	26.3	25.5	30.2	7.5
Red pine	102.7	30.7	27.4	20.8	13.6	4.0	4.1	—	1.6	.5	—
Spruce	428.0	129.1	82.2	74.8	48.9	36.9	24.5	17.7	8.8	5.1	—
Balsam fir	175.4	63.5	58.5	29.2	18.8	4.3	.6	—	.5	—	—
Hemlock	372.2	58.2	61.0	54.7	60.4	41.1	29.5	24.7	17.8	23.4	1.4
Other softwoods	110.9	33.8	35.8	18.8	8.1	6.7	5.4	1.1	1.2	—	—
Total softwoods	1,554.0	367.5	314.7	239.8	201.7	133.3	103.7	69.8	55.4	59.2	8.9
Select red oaks	117.4	14.4	21.8	25.7	19.1	13.6	8.6	7.7	1.6	4.9	—
Yellow birch	281.1	28.1	34.9	41.6	40.4	39.8	31.0	26.2	14.8	19.9	4.4
Paper birch	121.8	21.5	31.9	25.9	17.9	14.9	3.8	3.4	1.7	.8	—
Sugar maple	694.7	112.1	114.7	124.1	93.2	82.6	56.3	49.8	23.4	36.3	2.2
Soft maples	490.9	100.1	114.5	101.3	67.3	40.8	29.2	17.5	8.7	10.5	1.0
Beech	358.3	43.1	46.8	48.3	47.8	52.5	51.0	35.0	21.7	12.1	—
Ash	119.7	17.9	22.0	29.1	21.8	12.2	6.6	4.4	3.5	2.2	—
Aspen	197.4	31.5	35.7	46.3	42.2	25.0	9.3	5.4	2.0	—	—
Basswood	78.6	5.0	12.6	18.3	15.0	9.7	7.9	3.7	2.1	3.5	.8
Black cherry	110.3	12.8	12.9	17.8	18.1	24.6	13.7	6.3	2.0	2.1	—
Elm	124.2	12.2	15.4	22.2	17.9	15.1	9.7	8.2	9.5	11.4	2.6
Other hardwoods	54.2	11.4	8.5	7.1	5.2	7.5	3.5	2.1	2.5	4.8	1.6
Total hardwoods	2,748.6	410.1	471.7	507.7	405.9	338.3	230.6	169.7	93.5	108.5	12.6
All species	4,302.6	777.6	786.4	747.5	607.6	471.6	334.3	239.5	148.9	167.7	21.5

Table 57.—*Sawtimber volume in the NORTHERN REGION, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	1,064.4	161.5	198.3	152.5	150.7	108.8	115.0	143.1	34.5
Red pine	181.9	85.8	56.6	15.6	15.0	—	6.0	2.9	—
Spruce	861.4	303.6	189.8	138.8	93.6	72.3	37.3	26.0	—
Balsam fir	218.6	122.0	76.4	16.1	2.4	—	1.7	—	—
Hemlock	1,026.0	218.6	229.8	151.3	113.5	105.5	83.8	116.8	6.7
Other softwoods	162.6	73.9	31.6	25.8	20.8	5.0	5.5	—	—
Total softwoods	3,514.9	965.4	782.5	500.1	396.0	291.6	249.3	288.8	41.2
Select red oaks	250.2	—	80.0	60.8	39.9	35.5	8.6	25.4	—
Yellow birch	814.1	—	169.4	175.7	144.4	121.5	75.9	104.6	22.6
Paper birch	183.7	—	73.3	64.8	17.5	15.7	8.9	3.5	—
Sugar maple	1,581.0	—	398.9	372.3	262.7	230.7	115.6	187.2	13.6
Soft maples	804.4	—	296.0	186.0	136.1	81.1	44.1	54.3	6.8
Beech	1,009.1	—	203.3	238.0	239.4	159.3	106.3	62.8	—
Ash	225.3	—	90.4	53.0	30.3	21.9	18.5	11.2	—
Aspen	372.5	—	181.6	111.7	44.1	24.1	11.0	—	—
Basswood	194.2	—	62.2	43.0	36.3	16.4	11.7	19.6	5.0
Black cherry	304.4	—	78.9	108.9	64.5	29.7	9.5	12.9	—
Elm	354.5	—	73.6	66.5	45.2	39.9	49.0	65.6	14.7
Other hardwoods	126.6	—	21.7	32.8	16.1	9.7	12.3	26.4	7.6
Total hardwoods	6,220.0	—	1,729.3	1,513.5	1,076.5	785.5	471.4	573.5	70.3
All species	9,734.9	965.4	2,511.8	2,013.6	1,472.5	1,077.1	720.7	862.3	111.5

[1] International ¼-inch rule.

Table 58.—*Growing-stock volume in the CAPITOL DISTRICT UNIT, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	215.4	25.2	32.7	29.7	31.5	33.9	19.2	13.7	9.7	14.2	5.6
Red pine	35.0	12.5	15.5	5.7	.4	.3	.3	.3	—	—	—
Hemlock	136.8	26.7	23.8	31.3	21.0	14.3	10.0	6.6	1.7	1.4	—
Other softwoods	21.1	4.0	4.1	3.2	6.2	2.1	1.1	—	—	.4	—
Total softwoods	408.3	68.4	76.1	69.9	59.1	50.6	30.6	20.6	11.4	16.0	5.6
Select white oaks	27.0	1.2	2.8	2.2	3.7	3.5	4.4	3.6	1.9	3.2	.5
Select red oaks	102.2	10.3	11.2	13.7	16.4	16.9	12.0	6.6	5.7	8.0	1.4
Other oaks	35.4	1.8	4.9	6.7	9.8	3.2	4.2	2.0	.7	2.1	—
Hickory	28.7	4.8	6.3	6.0	4.8	3.8	1.0	1.3	.3	.4	—
Yellow birch	16.0	2.2	2.5	2.9	2.4	2.1	1.9	.7	.8	.5	—
Sweet birch	13.2	4.6	2.7	2.9	1.4	.8	.5	—	—	.3	—
Sugar maple	136.1	23.8	23.8	24.7	23.2	15.9	8.9	8.5	3.6	3.1	.6
Soft maples	90.2	22.8	20.8	20.4	12.4	7.3	2.3	2.4	.7	1.1	—
Beech	32.8	5.6	5.4	7.5	3.8	6.3	2.5	.9	.5	.3	—
Ash	50.2	9.0	9.8	11.7	7.2	7.0	2.5	1.3	.7	.7	.3
Basswood	20.7	2.4	3.5	2.7	4.5	3.9	1.1	1.6	1.0	—	—
Aspen	36.0	7.6	11.5	8.6	3.4	1.1	1.1	—	.7	1.2	.8
Black cherry	16.1	3.1	4.7	4.1	2.6	1.3	.3	—	—	—	—
Other hardwoods	86.2	16.6	21.0	18.2	13.5	8.5	2.5	1.2	1.1	2.8	.8
Total hardwoods	690.8	115.8	130.9	132.3	109.1	81.6	45.2	30.1	17.7	23.7	4.4
All species	1,099.1	184.2	207.0	202.2	168.2	132.2	75.8	50.7	29.1	39.7	10.0

Table 59.—*Sawtimber volume in the CAPITOL DISTRICT UNIT, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	603.6	98.7	110.2	124.7	74.6	56.8	42.9	68.1	27.6
Red pine	23.8	19.0	1.2	1.2	1.2	1.2	—	—	—
Hemlock	316.9	107.3	74.1	53.8	39.1	28.2	7.6	6.8	—
Other softwoods	47.5	11.3	22.1	8.1	3.8	—	—	2.2	—
Total softwoods	991.8	236.3	207.6	187.8	118.7	86.2	50.5	77.1	27.6
Select white oaks	86.1	—	12.7	13.3	17.7	15.7	8.4	15.7	2.6
Select red oaks	270.9	—	57.2	64.0	49.7	28.6	25.7	38.7	7.0
Other oaks	84.5	—	34.1	11.8	16.9	8.4	3.1	10.2	—
Hickory	44.1	—	17.0	14.6	4.0	5.5	1.2	1.8	—
Yellow birch	33.3	—	8.6	8.0	7.7	3.1	3.7	2.2	—
Sweet birch	11.4	—	5.1	2.9	2.2	—	—	1.2	—
Sugar maple	247.3	—	80.9	60.2	36.2	36.7	16.1	14.3	2.9
Soft maples	98.9	—	43.3	27.3	9.3	10.1	3.5	5.4	—
Beech	55.2	—	13.3	23.7	10.3	3.9	2.4	1.6	—
Ash	75.3	—	24.9	26.3	10.1	5.7	3.5	3.1	1.7
Basswood	45.1	—	15.4	14.6	4.3	6.4	4.4	—	—
Aspen	33.0	—	11.7	4.4	4.3	—	2.9	6.1	3.6
Black cherry	15.0	—	9.0	4.7	1.3	—	—	—	—
Other hardwoods	116.9	—	47.0	32.6	9.9	5.1	5.2	13.2	3.9
Total hardwoods	1,217.0	—	380.2	308.4	183.9	129.2	80.1	113.5	21.7
All species	2,208.8	236.3	587.8	496.2	302.6	215.4	130.6	190.6	49.3

[1] International ¼-inch rule.

Table 60.—*Growing-stock volume in the CATSKILL-LOWER HUDSON UNIT, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	164.5	21.4	21.6	24.8	22.7	15.2	16.2	14.4	9.2	17.5	1.5
Red pine	42.7	18.7	19.4	4.1	.5	—	—	—	—	—	—
Hemlock	173.1	40.7	29.6	28.4	21.6	19.0	12.2	7.2	7.3	6.1	1.0
Other softwoods	35.1	8.3	12.0	10.1	3.7	.4	—	—	.6	—	—
Total softwoods	415.4	89.1	82.6	67.4	48.5	34.6	28.4	21.6	17.1	23.6	2.5
Select white oaks	119.2	15.4	15.4	20.8	16.7	14.2	11.1	9.9	4.5	6.4	4.8
Select red oaks	260.6	18.9	36.7	47.9	41.6	31.6	27.8	22.1	12.7	20.2	1.1
Other oaks	263.6	27.3	54.5	59.5	39.9	31.8	25.6	11.6	4.8	8.6	—
Hickory	74.3	14.1	17.1	11.8	12.1	8.2	5.4	4.3	—	1.3	—
Yellow birch	34.4	4.5	11.0	8.7	3.9	4.0	.7	1.3	—	—	.3
Sweet birch	61.5	13.6	12.5	15.2	10.9	5.8	2.1	1.4	—	—	—
Sugar maple	156.1	39.1	31.6	21.7	15.6	20.4	15.0	4.4	4.0	3.3	1.0
Soft maples	273.7	61.9	65.1	57.4	37.1	21.2	14.5	7.4	3.3	5.1	.7
Beech	59.8	11.3	9.8	13.0	8.4	7.6	5.5	2.4	.6	1.2	—
Ash	102.9	20.7	24.8	22.0	10.9	8.5	7.8	2.7	2.9	2.1	.5
Basswood	31.3	3.0	4.2	7.6	6.6	4.2	2.4	.6	2.1	.6	—
Aspen	26.6	4.1	6.1	5.9	3.6	3.3	2.3	.6	—	.7	—
Black cherry	48.8	4.5	6.9	10.5	11.4	6.2	4.9	2.3	1.5	.6	—
Other hardwoods	53.9	8.5	8.2	9.4	4.2	6.0	5.6	2.8	3.2	5.6	.4
Total hardwoods	1,566.7	246.9	303.9	311.4	222.9	173.0	130.7	73.8	39.6	55.7	8.8
All species	1,982.1	336.0	386.5	378.8	271.4	207.6	159.1	95.4	56.7	79.3	11.3

Table 61.—*Sawtimber volume in the CATSKILL-LOWER HUDSON UNIT, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	497.0	86.5	83.3	58.2	66.2	62.8	43.0	88.9	8.1
Red pine	16.5	14.6	1.9	—	—	—	—	—	—
Hemlock	413.6	102.0	83.8	75.7	50.5	31.3	34.6	30.8	4.9
Other softwoods	54.2	36.1	13.9	1.6	—	—	2.6	—	—
Total softwoods	981.3	239.2	182.9	135.5	116.7	94.1	80.2	119.7	13.0
Select white oaks	292.0	—	61.8	57.3	48.1	45.5	21.8	32.7	24.8
Select red oaks	674.8	—	154.6	128.6	120.8	101.8	61.3	102.5	5.2
Other oaks	507.3	—	147.6	128.2	111.3	53.0	23.1	44.1	—
Hickory	128.5	—	44.9	33.6	23.3	19.9	—	6.8	—
Yellow birch	40.5	—	14.1	16.0	3.0	5.9	—	—	1.5
Sweet birch	78.6	—	40.0	23.5	8.9	6.2	—	—	—
Sugar maple	264.1	—	57.8	81.0	64.0	19.7	19.4	16.9	5.3
Soft maples	361.0	—	136.5	84.6	61.7	33.4	15.5	26.0	3.3
Beech	103.7	—	31.2	30.0	23.0	10.7	2.8	6.0	—
Ash	147.1	—	40.1	34.5	33.3	12.2	13.6	10.6	2.8
Basswood	68.0	—	24.7	16.8	10.4	2.9	10.0	3.2	—
Aspen	43.0	—	13.3	13.5	10.2	2.9	—	3.1	—
Black cherry	108.2	—	41.8	24.8	20.9	10.5	7.3	2.9	—
Other softwoods	123.5	—	15.4	23.7	24.9	12.9	15.5	28.8	2.3
Total softwoods	2,940.3	—	823.8	696.1	563.8	337.5	190.3	283.6	45.2
All species	3,921.6	239.2	1,006.7	831.6	680.5	431.6	270.5	403.3	58.2

[1] International ¼-inch rule.

Table 62.—*Growing-stock volume in the SOUTHEASTERN REGION, by species and diameter class, 1968*

(In millions of cubic feet)

Species	All classes	Diameter class (inches at breast height)									
		5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	379.9	46.6	54.3	54.5	54.2	49.1	35.4	28.1	18.9	31.7	7.1
Red pine	77.7	31.2	34.9	9.8	.9	.3	.3	.3	—	—	—
Hemlock	309.9	67.4	53.4	59.7	42.6	33.3	22.2	13.8	9.0	7.5	1.0
Other softwoods	56.2	12.3	16.1	13.3	9.9	2.5	1.1	—	.6	.4	—
Total softwoods	823.7	157.5	158.7	137.3	107.6	85.2	59.0	42.2	28.5	39.6	8.1
Select white oaks	146.2	16.6	18.2	23.0	20.4	17.7	15.5	13.5	6.4	9.6	5.3
Select red oaks	362.8	29.2	47.9	61.6	58.0	48.5	39.8	28.7	18.4	28.2	2.5
Other oaks	299.0	29.1	59.4	66.2	49.7	35.0	29.8	13.6	5.5	10.7	—
Hickory	103.0	18.9	23.4	17.8	16.9	12.0	6.4	5.6	.3	1.7	—
Yellow birch	50.4	6.7	13.5	11.6	6.3	6.1	2.6	2.0	.8	.5	.3
Sweet birch	74.7	18.2	15.2	18.1	12.3	6.6	2.6	1.4	—	.3	—
Sugar maple	292.2	62.9	55.4	46.4	38.8	36.3	23.9	12.9	7.6	6.4	1.6
Soft maples	363.9	84.7	85.9	77.8	49.5	28.5	16.8	9.8	4.0	6.2	.7
Beech	92.6	16.9	15.2	20.5	12.2	13.9	8.0	3.3	1.1	1.5	—
Ash	153.1	29.7	34.6	33.7	18.1	15.5	10.3	4.0	3.6	2.8	.8
Basswood	52.0	5.4	7.7	10.3	11.1	8.1	3.5	2.2	3.1	.6	—
Aspen	62.6	11.7	17.6	14.5	7.0	4.4	3.4	.6	.7	1.9	.8
Black cherry	64.9	7.6	11.6	14.6	14.0	7.5	5.2	2.3	1.5	.6	—
Other hardwoods	140.1	25.1	29.2	27.6	17.7	14.5	8.1	4.0	4.3	8.4	1.2
Total hardwoods	2,257.5	362.7	434.8	443.7	332.0	254.6	175.9	103.9	57.3	79.4	13.2
All species	3,081.2	520.2	593.5	581.0	439.6	339.8	234.9	146.1	85.8	119.0	21.3

Table 63.—*Sawtimber volume in the SOUTHEASTERN REGION, by species and diameter class, 1968*

(In millions of board feet)[1]

Species	All classes	Diameter class (inches at breast height)							
		9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0 and larger
White pine	1,100.6	185.2	193.5	182.9	140.8	119.6	85.9	157.0	35.7
Red pine	40.3	33.6	3.1	1.2	1.2	1.2	—	—	—
Hemlock	730.5	209.3	157.9	129.5	89.6	59.5	42.2	37.6	4.9
Other softwoods	101.7	47.4	36.0	9.7	3.8	—	2.6	2.2	—
Total softwoods	1,973.1	475.5	390.5	323.3	235.4	180.3	130.7	196.8	40.6
Select white oaks	378.1	—	74.5	70.6	65.8	61.2	30.2	48.4	27.4
Select red oaks	945.7	—	211.8	192.6	170.5	130.4	87.0	141.2	12.2
Other oaks	591.8	—	181.7	140.0	128.2	61.4	26.2	54.3	—
Hickory	172.6	—	61.9	48.2	27.3	25.4	1.2	8.6	—
Yellow birch	73.8	—	22.7	24.0	10.7	9.0	3.7	2.2	1.5
Sweet birch	90.0	—	45.1	26.4	11.1	6.2	—	1.2	—
Sugar maple	511.4	—	138.7	141.2	100.2	56.4	35.5	31.2	8.2
Soft maples	459.9	—	179.8	111.9	71.0	43.5	19.0	31.4	3.3
Beech	158.9	—	44.5	53.7	33.3	14.6	5.2	7.6	—
Ash	222.4	—	65.0	60.8	43.4	17.9	17.1	13.7	4.5
Basswood	113.1	—	40.1	31.4	14.7	9.3	14.4	3.2	—
Aspen	76.0	—	25.0	17.9	14.5	2.9	2.9	9.2	3.6
Black cherry	123.2	—	50.8	29.5	22.2	10.5	7.3	2.9	—
Other hardwoods	240.4	—	62.4	56.3	34.8	18.0	20.7	42.0	6.2
Total hardwoods	4,157.3	—	1,204.0	1,004.5	747.7	466.7	270.4	397.1	66.9
All species	6,130.4	475.5	1,594.5	1,327.8	983.1	647.0	401.1	593.9	107.5

[1] International ¼-inch rule.

Table 64.—*Sampling errors for growing-stock (G) and sawtimber (S) volume by species, geographic unit, and region, 1968*

(In percent)

Species	Lake Plain		Southwest Highlands		S.-central Highlands		SW. Region total		St. Lawrence-N. Adirondack		Western Adirondack	
	G.	S.	G.	S.	G.	S.	G.	S.	G.	S.	G.	S.
White pine	33	42	32	31	20	23	16	18	22	25	24	23
Red pine	(*)	(*)	50	(*)	33	39	25	29	37	45	(*)	(*)
Spruce	—	—	—	—	—	—	—	—	16	16	13	17
Balsam fir	—	—	—	—	—	—	—	—	21	27	22	35
Hemlock	16	18	17	17	13	14	9	10	27	30	12	13
Other softwoods	45	(*)	45	(*)	41	50	26	39	27	34	(*)	(*)
All softwoods	17	21	16	15	10	11	8	9	8	11	7	9
Select white oaks	24	27	21	25	26	25	14	16	—	—	—	—
Select red oaks	30	30	17	19	15	16	11	12	33	31	33	31
Other oaks	—	—	36	37	30	35	22	26	—	—	—	—
Hickory	16	23	23	27	31	38	12	16	—	—	—	—
Yellow birch	20	28	22	31	18	28	11	17	14	19	11	14
Sweet birch	—	—	—	—	16	26	12	21	—	—	—	—
Paper birch	—	—	—	—	—	—	—	—	20	33	—	—
Sugar maple	11	13	11	14	9	11	6	7	9	11	11	12
Soft maples	12	16	14	19	9	13	6	9	10	14	10	13
Beech	15	19	14	17	11	14	8	9	11	13	12	13
Ash	13	16	14	21	12	14	7	10	17	26	17	22
Basswood	18	21	19	22	15	18	11	12	22	25	23	26
Aspen	19	31	17	32	17	30	11	18	14	18	27	41
Black cherry	20	23	20	23	18	22	11	14	16	22	15	17
Elm	11	13	16	19	21	30	9	14	14	17	21	27
Other hardwoods	23	24	29	42	35	50	17	21	26	42	34	45
All hardwoods	4	5	4	5	4	5	2	3	4	5	5	5
All species	3	4	3	4	3	4	2	2	2	3	2	3

Continued

Table 64.—*Continued.*

Species	Eastern Adirondack		N. Region total		Capitol District		Catskill-Lower Hudson		SE. Region total		State total	
	G.	S.	G.	S.	G.	S.	G.	S.	G.	S.	G.	S.
White pine	14	15	11	11	12	12	17	18	10	11	7	7
Red pine	38	36	27	29	42	41	(*)	47	36	31	16	19
Spruce	12	15	8	9	—	—	—	—	—	—	8	9
Balsam fir	16	21	12	15	—	—	—	—	—	—	11	17
Hemlock	14	15	10	11	14	14	13	15	9	11	5	6
Other softwoods	40	48	22	25	45	45	(*)	40	40	35	16	19
All softwoods	6	7	4	5	4	8	4	11	6	7	3	4
Select white oaks	—	—	—	—	20	24	11	14	10	12	8	9
Select red oaks	21	28	16	18	11	13	10	11	8	9	6	7
Other oaks	—	—	—	—	15	28	12	15	11	13	10	12
Hickory	—	—	—	—	18	25	14	19	12	16	8	11
Yellow birch	11	13	7	9	20	24	18	33	14	21	6	8
Sweet birch	—	—	—	—	19	32	14	20	12	18	9	14
Paper birch	15	20	12	17	—	—	—	—	—	—	9	15
Sugar maple	11	12	6	7	11	15	10	13	8	10	4	5
Soft maples	13	22	6	9	11	19	9	12	7	10	4	6
Beech	12	13	7	8	17	22	17	20	13	15	5	6
Ash	19	25	10	14	14	22	12	17	10	13	5	7
Basswood	26	33	15	18	21	26	21	27	15	19	8	9
Aspen	23	31	11	16	20	33	21	34	14	26	7	12
Black cherry	30	36	10	13	21	35	22	24	17	22	7	9
Elm	38	41	11	14	—	—	—	—	—	—	6	8
Other hardwoods	12	16	18	19	18	21	21	30	14	17	16	21
All hardwoods	5	6	3	3	4	7	4	5	3	4	1	2
All species	3	3	1	2	3	4	2	3	2	2	1	1

Table 65.—*Volume of sawtimber in the LAKE PLAIN UNIT, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	117.9	3.9	16.1	60.9	37.0
Red pine	51.4	—	.3	24.4	26.7
Other softwoods[3]	166.6	—	—	—	—
Total softwoods	335.9	3.9	16.4	85.3	63.7
Select white oaks	71.2	10.9	16.6	27.3	16.4
Select red oaks	191.5	58.4	37.9	65.2	30.0
Hickory	115.7	3.4	15.1	46.4	50.8
Yellow birch	25.0	2.4	6.4	11.0	5.2
Sugar maple	520.6	62.5	104.2	277.1	76.8
Soft maples	366.7	19.5	58.0	193.8	95.4
Beech	143.9	4.4	15.5	95.2	28.8
White ash	207.7	31.1	46.0	92.6	38.0
Basswood	275.8	39.6	73.3	133.3	29.6
Aspen	30.8	1.6	2.7	11.8	14.7
Black cherry	116.7	7.8	18.2	63.4	27.3
Yellow-poplar	45.0	4.8	3.2	18.8	18.2
Elm	299.3	43.7	76.3	136.5	42.8
Other hardwoods	69.4	7.8	12.4	40.7	8.5
Total hardwoods	2,479.3	297.9	485.8	1,213.1	482.5

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Species other than pines were not graded into standard-lumber log grades.

Table 66.—*Volume of sawtimber in the SOUTHWEST HIGHLANDS UNIT, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	65.4	2.9	13.2	32.2	17.1
Red pine	25.9	—	.7	17.5	7.7
Other softwoods[3]	238.0	—	—	—	—
Total softwoods	329.3	2.9	13.9	49.7	24.8
Select white oaks	112.6	20.2	32.1	46.6	13.7
Select red oaks	326.8	36.0	65.5	138.1	87.2
Other oaks	21.3	2.2	.1	12.9	6.1
Hickory	47.9	—	5.8	23.9	18.2
Yellow birch	16.8	1.2	2.4	10.9	2.3
Sugar maple	579.4	68.2	153.6	230.9	126.7
Soft maples	272.5	27.4	43.4	104.1	97.6
Beech	203.4	2.0	21.8	109.5	70.1
White ash	112.4	19.9	34.1	43.2	15.2
Basswood	110.8	14.8	31.5	46.8	17.7
Aspen	26.0	1.1	.4	14.4	10.1
Black cherry	78.7	13.6	12.5	36.8	15.8
Elm	85.3	13.7	25.2	34.2	12.2
Other hardwoods	36.8	.1	5.2	17.3	14.2
Total hardwoods	2,030.7	220.4	433.6	869.6	507.1

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Species other than pines were not graded into standard-lumber log grades.

Table 67.—*Voume of sawtimber in the SOUTH-CENTRAL HIGHLANDS UNIT, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	260.4	4.8	10.7	113.2	131.7
Red pine[3]	100.7	.9	1.2	71.0	27.6
Other softwoods[4]	484.5	—	—	—	—
Total softwoods	845.6	5.7	11.9	184.2	159.3
Select white oaks	42.3	8.4	6.8	19.9	7.2
Select red oaks	301.9	56.9	71.0	111.1	62.9
Other oaks	75.7	10.0	17.0	29.4	19.3
Hickory	41.7	—	8.6	16.8	16.3
Yellow birch	26.3	1.3	5.2	16.9	2.9
Sweet birch	20.4	1.3	3.9	14.1	1.1
Sugar maple	683.8	74.2	137.6	338.7	133.3
Soft maples	420.8	12.3	65.5	234.0	109.0
Beech	274.1	6.5	33.0	177.7	56.9
White ash	199.2	39.0	46.0	66.0	48.2
Basswood	197.3	25.7	57.8	95.8	18.0
Aspen	40.9	—	5.9	19.5	15.5
Black cherry	69.5	4.9	16.5	27.4	20.7
Elm	88.4	14.0	15.5	30.1	28.8
Other hardwoods	40.0	3.4	2.6	20.9	13.1
Total hardwoods	2,522.3	257.9	492.9	1,218.3	553.2

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Includes 2,700,000 board feet of yellow pine.
[4] Species other than pine were not graded into standard-lumber log grades.

Table 68.—*Volume of sawtimber in the SOUTHWESTERN REGION, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	443.7	11.6	40.0	206.3	185.8
Red pine[3]	178.0	.9	2.2	112.9	62.0
Other softwoods[4]	889.1	—	—	—	—
Total softwoods	1,510.8	12.5	42.2	319.2	247.8
Select white oaks	226.1	39.5	55.5	93.8	37.3
Select red oaks	820.2	151.3	174.4	314.4	180.1
Other oaks	116.1	18.6	21.3	49.7	26.5
Hickory	205.3	3.4	29.5	87.1	85.3
Yellow birch	68.1	4.9	14.0	38.8	10.4
Sweet birch	34.6	1.5	6.3	21.1	5.7
Sugar maple	1,783.8	204.9	395.4	846.7	336.8
Soft maples	1,060.0	59.2	166.9	531.9	302.0
Beech	621.4	12.9	70.3	382.4	155.8
White ash	519.3	90.0	126.1	201.8	101.4
Basswood	583.9	80.1	162.6	275.9	65.3
Aspen	85.1	1.6	7.6	38.9	37.0
Black cherry	264.9	26.3	47.2	127.6	63.8
Elm	473.0	71.4	117.0	200.8	83.8
Other hardwoods	170.5	10.6	18.2	90.1	51.6
Total hardwoods	7,032.3	776.2	1,412.3	3,301.0	1,542.8

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Includes a small volume of yellow pine.
[4] Species other than pine were not graded into standard-lumber log grades.

Table 69.—*Volume of sawtimber in the ST. LAWRENCE-NORTHERN ADIRONDACK UNIT, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	209.4	3.1	18.5	79.0	108.8
Red pine	100.5	1.7	.8	71.1	26.9
Other softwoods[3]	720.1	—	—	—	—
Total softwoods	1,030.0	4.8	19.3	150.1	135.7
Select red oaks	66.4	12.5	12.4	36.3	5.2
Yellow birch	227.3	39.8	62.2	111.0	14.3
Paper birch	47.1	6.7	6.9	30.9	2.6
Sugar maple	653.0	132.2	160.7	293.3	66.8
Soft maples	393.2	56.1	72.3	212.9	51.9
Beech	383.4	34.6	76.2	240.2	32.4
White ash	77.5	10.8	21.7	32.9	12.1
Aspen	174.4	10.5	22.7	95.8	45.4
Basswood	119.0	13.8	33.6	63.0	8.6
Black cherry	144.4	13.7	35.8	62.4	32.5
Elm	218.0	47.3	57.0	89.4	24.3
Other hardwoods	43.1	5.3	7.2	14.8	15.8
Total hardwoods	2,546.8	383.3	568.7	1,282.9	311.9

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Species other than pines were not graded into standard-lumber log grades.

Table 70.—*Volume of sawtimber in the WESTERN ADIRONDACK UNIT, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	246.3	5.7	18.0	108.2	114.4
Red pine	43.9	—	3.0	30.5	10.4
Other softwoods[3]	680.3	—	—	—	—
Total softwoods	970.5	5.7	21.0	138.7	124.8
Select red oaks	63.9	11.4	14.4	33.1	5.0
Yellow birch	255.8	37.2	68.1	134.7	15.8
Sugar maple	390.3	63.4	94.8	189.0	43.1
Soft maples	294.3	15.8	60.4	181.1	37.0
Beech	319.2	20.0	69.2	197.3	32.7
White ash	90.6	15.7	25.7	35.2	14.0
Aspen	80.6	2.3	13.9	45.7	18.7
Basswood	40.4	5.0	6.8	25.5	3.1
Black cherry	139.0	15.0	24.5	66.1	33.4
Elm	122.0	31.6	37.8	42.7	9.9
Other hardwoods	49.4	2.3	8.0	31.9	7.2
Total hardwoods	1,845.5	219.7	423.6	982.3	219.9

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Species other than pines were not graded into standard-lumber log grades.

Table 71.—Volume of sawtimber in the EASTERN ADIRONDACK UNIT, *by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	608.7	6.3	42.6	306.9	252.9
Red pine	37.5	—	.1	23.8	13.6
Other softwoods[3]	868.2	—	—	—	—
Total softwoods	1,514.4	6.3	42.7	330.7	266.5
Select red oaks	119.9	29.2	25.7	52.5	12.5
Yellow birch	336.3	84.2	80.0	156.1	16.0
Paper birch	132.3	14.5	38.0	73.1	6.7
Sugar maple	537.7	114.2	151.6	219.4	52.5
Soft maples	116.9	19.5	27.1	54.7	15.6
Beech	306.5	19.5	63.2	185.9	37.9
White ash	57.2	13.8	13.9	20.5	9.0
Aspen	117.5	4.0	19.3	58.2	36.0
Basswood	34.8	5.8	10.5	16.3	2.2
Other hardwoods	68.6	8.9	17.3	27.8	14.6
Total hardwoods	1,827.7	313.6	446.6	864.5	203.0

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Species other than pines were not graded into standard-lumber log grades.

Table 72.—*Volume of sawtimber in the NORTHEASTERN REGION, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	1,064.4	15.1	79.1	494.1	476.1
Red pine[3]	189.7	1.7	3.9	128.3	55.8
Other softwoods[4]	2,260.8	—	—	—	—
Total softwoods	3,514.9	16.8	83.0	622.4	531.9
Select white oaks	64.3	8.3	12.0	32.9	11.1
Select red oaks	250.2	53.1	52.5	121.9	22.7
Yellow birch	814.1	161.1	210.1	397.2	45.7
Paper birch	183.7	21.3	46.9	106.0	9.5
Sugar maple	1,581.0	309.8	407.1	701.7	162.4
Soft maples	804.4	91.4	159.8	448.7	104.5
Beech	1,009.1	74.1	208.6	623.4	103.0
White ash	225.3	40.3	61.3	88.6	35.1
Aspen	372.5	16.8	55.9	199.7	100.1
Basswood	194.2	24.6	50.9	104.8	13.9
Black cherry	304.4	30.5	64.8	136.1	73.0
Elm	354.5	82.7	100.4	136.2	35.2
Other hardwoods	62.3	2.6	8.6	32.5	18.6
Total hardwoods	6,220.0	916.6	1,438.9	3,129.7	734.8

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Includes a small volume of yellow pine.
[4] Species other than pine were not graded into standard-lumber log grades.

Table 73.—*Volume of sawtimber in the CAPITOL DISTRICT UNIT, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	603.6	2.9	27.5	253.8	319.4
Red pine	23.8	—	.1	13.7	10.0
Yellow pine	12.4	—	—	4.8	7.6
Other softwoods[3]	352.0	—	—	—	—
Total softwoods	991.8	2.9	27.6	272.3	337.0
Select white oaks	86.1	21.5	21.3	34.6	8.7
Select red oaks	270.9	74.6	63.1	110.7	22.5
Other oaks	84.5	11.2	19.4	38.9	15.0
Hickory	44.1	5.9	5.1	20.5	12.6
Yellow birch	33.3	6.9	9.1	15.7	1.6
Sweet birch	11.4	1.7	2.0	7.1	.6
Paper birch	26.5	3.1	7.4	14.7	1.3
Sugar maple	247.3	34.9	59.9	125.7	26.8
Soft maples	98.9	10.7	23.0	51.2	14.0
Beech	55.2	3.0	10.6	34.1	7.5
White ash	75.3	15.0	23.5	27.0	9.8
Basswood	45.1	4.3	12.2	25.5	3.1
Aspen	33.0	8.9	1.6	17.0	5.5
Black cherry	15.0	—	4.0	8.1	2.9
Elm	73.1	11.1	17.3	37.9	6.8
Other hardwoods	17.3	3.1	2.6	10.1	1.5
Total hardwoods	1,217.0	215.9	282.1	578.8	140.2

[1] International ¼-inch rule.

[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.

[3] Species other than pines were not graded into standard-lumber log grades.

Table 74.—*Volume of sawtimber in the CATSKILL-LOWER HUDSON UNIT, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	497.0	4.8	18.3	235.9	238.0
Red pine	16.5	—	.1	9.0	7.4
Yellow pine	16.5	—	.9	15.4	.2
Other softwoods[3]	451.3	—	—	—	—
Total softwoods	981.3	4.8	19.3	260.3	245.6
Select white oaks	292.0	72.4	80.1	113.4	26.1
Select red oaks	674.8	234.9	150.7	249.9	39.3
Other oaks	507.3	106.8	105.8	226.8	67.9
Hickory	128.5	24.7	20.1	55.6	28.1
Yellow birch	40.5	8.0	11.3	19.3	1.9
Sweet birch	78.6	2.9	20.9	47.4	7.4
Sugar maple	264.1	49.3	60.7	126.9	27.2
Soft maples	361.0	31.5	69.6	209.9	50.0
Beech	103.7	3.9	10.0	78.8	11.0
White ash	147.1	25.0	45.0	56.7	20.4
Basswood	68.0	12.2	23.4	28.3	4.1
Aspen	43.0	3.1	15.6	17.3	7.0
Black cherry	108.2	21.1	20.1	44.5	22.5
Yellow-poplar	74.8	40.2	13.1	17.6	3.9
Elm	29.6	7.7	8.4	11.2	2.3
Other hardwoods	19.1	3.9	7.4	6.3	1.5
Total hardwoods	2,940.3	647.6	662.2	1,309.9	320.6

[1] International ¼-inch rule.
[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.
[3] Species other than pines were not graded into standard-lumber log grades.

Table 75.—*Volume of sawtimber in the SOUTHEASTERN REGION, by species and log-quality class, 1968*

(In millions of board feet)[1]

Species	All classes	Standard-lumber logs			
		Grade 1	Grade 2	Grade 3	Grade 4[2]
White pine	1,100.6	7.7	45.8	489.7	557.4
Red pine	40.3	—	.2	22.7	17.4
Yellow pines	28.9	—	.9	20.2	7.8
Other softwoods[3]	803.3	—	—	—	—
Total softwoods	1,973.1	7.7	46.9	532.6	582.6
Select white oaks	378.1	93.9	101.4	148.0	34.8
Select red oaks	945.7	309.5	213.8	360.6	61.8
Other red oaks	591.8	118.0	125.2	265.7	82.9
Hickory	172.6	30.6	25.2	76.1	40.7
Yellow birch	73.8	14.9	20.4	35.0	3.5
Sweet birch	90.0	4.6	22.9	54.5	8.0
Paper birch	27.9	3.1	7.5	15.9	1.4
Sugar maple	511.4	84.2	120.6	252.6	54.0
Soft maples	459.9	42.2	92.6	261.1	64.0
Beech	158.9	6.9	20.6	112.9	18.5
White ash	222.4	40.0	68.5	83.7	30.2
Basswood	113.1	16.5	35.6	53.8	7.2
Aspen	76.0	12.0	17.2	34.3	12.5
Black cherry	123.2	21.1	24.1	52.6	25.4
Yellow-poplar	74.8	40.2	13.1	17.6	3.9
Elm	35.0	7.0	9.9	15.2	2.9
Other hardwoods	102.7	18.8	25.7	49.1	9.1
Total hardwoods	4,157.3	863.5	944.3	1,888.7	460.8

[1] International ¼-inch rule.

[2] Grade 4 applies only to the pines. For hardwoods the volumes in this column are for construction logs.

[3] Species other than pine were not graded into standard-lumber log grades.

Table 76.—*Average annual net growth, timber removal, and mortality of growing stock and sawtimber, by species, in the Southwestern Region, 1950-67*

Species	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)[1]		
	Net growth	Removal	Mortality	Net growth	Removal	Mortality
White pine	7,249	645	1,253	25,633	2,397	3,559
Red pine	5,266	955	1,292	13,273	—	1,473
Spruce	528	136	2,001	544	—	1,255
Balsam fir	48	—	55	—	—	—
Hemlock	7,697	2,956	1,637	16,739	12,554	1,780
Other softwoods	221	—	151	427	—	67
All softwoods	21,009	4,692	6,389	56,616	14,951	8,134
Select white oaks	2,024	2,593	244	8,167	10,390	678
Select red oaks	7,595	4,516	1,239	23,856	15,754	1,377
Other oaks	1,184	492	1,148	3,212	1,426	1,477
Hickory	4,689	561	856	9,987	2,618	762
Yellow birch	400	747	2,467	1,283	2,920	1,379
Sweet birch	1,692	1,624	233	1,598	6,693	214
Paper birch	131	—	36	351	—	26
Sugar maple	19,934	18,754	2,993	43,099	82,637	3,552
Soft maples	17,425	5,029	2,648	17,502	20,713	3,483
Beech	7,856	6,380	1,866	16,320	24,406	762
Ash	13,106	2,058	1,609	31,778	4,296	1,595
Basswood	5,772	4,351	1,497	15,024	14,939	1,150
Aspen	5,730	242	1,921	5,636	—	354
Black cherry	2,624	1,403	1,561	6,749	2,980	1,998
Elm	−4,456	1,014	10,465	−15,135	3,841	18,939
Other hardwoods	1,390	605	674	4,033	1,516	1,487
All hardwoods	87,096	50,369	31,457	173,460	195,129	39,233
All species	108,105	55,061	37,846	230,076	210,080	47,367

[1] International ¼-inch rule.

Table 77.—Average annual net growth, timber removal, and mortality of growing stock and sawtimber, by species, in the Northern Region, 1950-67

Species	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)[1]		
	Net growth	Removal	Mortality	Net growth	Removal	Mortality
White pine	11,540	8,083	2,031	40,049	37,787	2,420
Red pine	1,479	290	224	3,984	1,137	496
Spruce	6,260	5,787	5,027	3,123	20,234	12,543
Balsam fir	6,476	5,292	3,421	8,630	5,606	2,895
Hemlock	3,927	5,704	2,870	12,075	22,001	5,488
Other softwoods	1,307	2,887	901	2,509	3,743	754
All softwoods	30,989	28,043	14,474	70,370	90,508	24,596
Select white oaks	134	166	43	761	—	19
Select red oaks	3,306	588	365	11,181	1,555	814
Other oaks	4	—	3	—	—	—
Hickory	413	271	109	479	1,264	36
Yellow birch	1,193	3,454	5,197	2,254	15,657	10,214
Sweet birch	86	146	279	265	682	38
Paper birch	1,314	817	1,090	1,889	3,699	827
Sugar maple	13,847	11,844	4,668	38,215	49,025	6,168
Soft maples	8,794	3,366	2,883	17,483	11,516	3,297
Beech	3,324	4,185	1,867	12,108	16,465	3,856
Ash	1,972	1,960	1,585	6,575	6,672	1,197
Basswood	1,858	1,205	704	7,625	3,943	752
Aspen	4,530	641	4,512	13,963	—	1,261
Black cherry	4,603	1,421	1,102	10,357	5,746	2,694
Elm	1,382	1,695	3,299	6,650	7,447	3,802
Other hardwoods	288	121	197	1,061	565	536
All hardwoods	47,048	31,880	27,903	130,866	124,236	35,511
All species	78,037	59,923	42,377	201,236	214,744	60,107

[1] International ¼-inch rule.

Table 78.—*Average annual net growth, timber removal, and mortality of growing stock and sawtimber, by species, in the Southeastern Region, 1950-67*

Species	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)[1]		
	Net growth	Removal	Mortality	Net growth	Removal	Mortality
White pine	7,857	3,872	3,293	31,508	16,567	5,377
Red pine	2,864	381	377	3,024	—	401
Spruce	341	577	325	92	2,179	981
Balsam fir	39	—	21	—	—	—
Hemlock	5,386	3,135	1,682	20,320	13,895	2,871
Other softwoods	1,015	—	739	2,070	—	640
All softwoods	17,502	7,965	6,437	57,014	32,641	10,270
Select white oaks	1,794	418	793	5,157	—	356
Select red oaks	8,142	2,461	2,595	30,437	2,712	2,704
Other oaks	6,336	316	2,427	19,066	—	1,521
Hickory	1,085	101	399	3,421	—	240
Yellow birch	221	173	855	432	321	1,005
Sweet birch	1,597	1,791	232	3,171	5,760	124
Paper birch	1,041	334	519	956	—	246
Sugar maple	6,533	1,074	1,228	17,597	1,093	1,340
Soft maples	7,393	1,303	1,880	15,571	3,135	1,300
Beech	645	1,135	900	1,099	798	674
Ash	3,281	581	854	6,910	796	592
Basswood	605	48	389	2,915	—	313
Aspen	1,303	—	1,296	4,534	—	189
Black cherry	1,106	657	628	3,969	529	807
Elm	– 202	342	1,770	1,137	491	1,749
Other hardwoods	976	117	1,475	1,802	—	596
All hardwoods	41,856	10,851	18,240	118,174	15,635	13,756
All species	59,358	18,816	24,677	175,188	48,276	24,026

[1] International ¼-inch rule.

Table 79.—*Area of New York, by land class, county, unit, and region, 1968*

County and unit	Total land area[1]	Nonforest land area	Forest-land area[2]			
			Noncommercial	Commercial		Sampling error
	Thousand acres				*Percent*	*Percent*
Cayuga	446.8	313.5	2.5	130.8	29	10
Erie	677.4	471.2	2.5	203.7	30	8
Genesee	320.6	227.1	1.3	92.2	29	13
Livingston	408.4	283.9	17.3	107.2	26	11
Madison	422.9	231.2	.3	191.4	45	7
Monroe	432.1	363.7	6.7	61.7	14	19
Niagara	340.7	282.6	.1	58.0	17	20
Onondaga	507.8	342.8	3.3	161.7	32	9
Ontario	416.5	297.8	1.3	117.4	28	11
Orleans	253.4	202.5	1.2	49.7	20	20
Oswego	617.2	227.3	.9	389.0	63	4
Seneca	211.2	172.4	1.0	37.8	18	22
Wayne	388.0	289.4	1.7	96.9	25	13
Wyoming	382.5	259.6	6.6	116.3	30	10
Yates	219.7	143.7	1.2	74.8	34	12
Lake Plain	6,045.2	4,108.7	47.9	1,888.6	31	2
Allegany	670.2	258.9	2.5	408.8	61	5
Cattaraugus	853.9	325.6	61.3	467.0	55	5
Chautauqua	691.6	343.4	1.8	346.4	50	6
Steuben	902.6	466.0	2.9	433.7	48	5
Southwest Highlands	3,118.3	1,393.9	68.5	1,655.9	53	2

Continued

Table 79—*Continued*

County and unit	Total land area[1]	Nonforest land area	Forest-land area[2]			
			Noncommercial	Commercial		Sampling error
	Thousand acres				*Percent*	*Percent*
Broome	456.6	214.1	1.7	240.8	53	7
Chemung	265.6	126.6	.4	138.6	53	8
Chenango	581.5	281.0	—	300.5	52	6
Cortland	321.3	162.7	.1	158.5	49	7
Delaware	933.4	317.6	62.3	553.5	59	4
Otsego	648.5	313.8	2.6	332.1	51	6
Schuyler	211.0	100.4	1.0	109.6	52	9
Tioga	335.4	160.2	—	175.2	52	7
Tompkins	308.5	162.1	1.7	144.7	46	8
South-central Highlands	4,061.8	1,838.5	69.8	2,153.5	53	2
Southwestern Region	13,225.3	7,341.1	186.2	5,698.0	43	1
Clinton	677.6	194.0	33.4	450.2	66	4
Franklin	1,071.2	181.5	234.9	654.8	61	3
Jefferson	828.1	476.5	37.2	314.4	38	8
St. Lawrence	1,771.4	529.7	156.1	1,085.6	61	3
St. Lawrence-N. Adirondack	4,348.3	1,381.7	461.6	2,505.0	38	2

Fulton	318.8	73.8	71.1	173.9	55	4
Herkimer	918.2	232.2	290.8	395.2	43	3
Lewis	826.4	204.3	60.8	561.3	68	3
Oneida	783.0	392.3	33.1	357.6	46	4
Western Adirondack	2,846.4	902.6	455.8	1,488.0	52	2
Essex	1,166.7	98.7	479.4	588.6	50	3
Hamilton	1,110.5	29.8	713.9	366.8	33	3
Warren	567.8	43.9	184.7	339.2	60	3
Eastern Adirondack	2,845.0	172.4	1,378.0	1,294.6	46	1
Northern region	10,039.7	2,456.7	2,295.4	5,287.6	53	1
Albany	336.4	203.1	2.8	130.5	39	11
Columbia	413.0	204.9	4.5	203.6	49	8
Montgomery	261.2	196.0	1.7	63.5	24	18
Rensselaer	425.8	179.7	2.3	243.8	57	6
Saratoga	523.5	189.8	18.7	315.0	60	5
Schenectady	132.4	85.5	1.2	45.7	35	18
Washington	535.0	272.5	24.4	238.1	45	7
Capitol District	2,627.3	1,331.5	55.6	1,240.2	47	3
Dutchess	520.5	255.9	13.5	251.1	48	8
Greene	418.1	126.1	71.0	221.0	53	7
Orange	532.9	279.4	15.2	238.3	45	8
Putnam	148.0	49.7	13.6	84.7	57	11
Schoharie	399.3	184.2	10.1	205.0	51	8
Suffolk	594.5	394.9	32.3	167.3	28	13
Sullivan	627.4	179.5	25.7	422.2	67	5
Ulster	730.4	194.9	152.5	383.0	52	5
Westchester	283.5	183.2	17.6	82.7	29	18

Continued

Table 79.—*Continued*

County and unit	Total land area[1]	Nonforest land area	Forest-land area[2]			
			Noncommercial	Commercial		Sampling error
	Thousand acres				*Percent*	*Percent*
Catskill-Lower Hudson	4,254.6	1,847.8	351.5	2,055.3	48	2
Southeastern Region	6,881.9	3,179.3	407.1	3,295.5	45	2
Metropolitan Region	489.3	489.3				
State total	30,636.2	13,466.4	2,888.7	14,281.1	47	1

[1] Land area from Bureau of the Census—Areas of New York: 1960 (May 1967).

[2] Forest-land area that is noncommercial includes both nonproductive and productive-reserved forest land.

Table 80.—*Area of commercial forest land in New York, by ownership class and county, 1968*

(In thousands of acres)

County	Publicly owned		Privately owned		Total
	State	Other	Farmer-owned	Other private	
Albany	7.2	3.7	30.6	89.0	130.5
Allegany	40.4	2.2	137.5	228.7	408.8
Broome	9.0	.3	81.9	149.6	240.8
Cattaraugus	32.5	3.4	146.0	285.1	467.0
Cayuga	8.7	—	69.9	52.2	130.8
Chautauqua	18.3	2.9	149.2	176.0	346.4
Chemung	.6	.5	37.3	100.2	138.6
Chenango	75.7	1.6	115.1	108.1	300.5
Clinton	23.2	3.1	173.2	250.7	450.2
Columbia	5.5	—	59.3	138.8	203.6
Cortland	27.3	—	69.9	61.3	158.5
Delaware	23.5	1.2	216.7	312.1	553.5
Dutchess	2.7	.5	53.5	194.4	251.1
Erie	.6	3.7	66.7	132.7	203.7
Essex	7.2	2.7	64.2	514.5	588.6
Franklin	20.4	1.0	98.9	534.5	654.8
Fulton	4.6	5.6	19.3	144.4	173.9
Genesee	.5	.6	37.4	53.7	92.2
Greene	2.4	.4	40.6	177.6	221.0
Hamilton	1.6	.1	1.2	363.9	366.8
Herkimer	3.9	9.5	49.5	332.3	395.2
Jefferson	15.0	15.2	121.0	163.2	314.4
Lewis	73.8	15.6	82.1	389.8	561.3
Livingston	4.4	.9	57.4	44.5	107.2
Madison	27.4	.9	71.0	92.1	191.4
Monroe	—	—	22.2	39.5	61.7
Montgomery	6.4	.5	28.1	28.5	63.5

Continued

Table 80.—*Continued*

County	Publicly owned		Privately owned		Total
	State	Other	Farmer-owned	Other private	
Niagara	—	0.2	16.1	41.7	58.0
Oneida	31.6	8.9	90.4	226.7	357.6
Onondaga	10.4	3.2	48.0	100.1	161.7
Ontario	.1	1.3	45.6	70.4	117.4
Orange	1.1	14.6	34.4	188.2	238.3
Orleans	—	5.4	22.0	22.3	49.7
Oswego	28.3	2.3	80.4	278.0	389.0
Otsego	19.5	3.8	132.5	176.3	332.1
Putnam	1.3	.2	7.9	75.3	84.7
Rensselaer	6.0	.7	46.0	191.1	243.8
St. Lawrence	59.9	4.3	266.3	755.1	1,085.6
Saratoga	3.5	14.9	46.2	250.4	315.0
Schenectady	.6	.1	6.3	38.7	45.7
Schoharie	30.8	1.1	60.9	112.2	205.0
Schuyler	10.6	6.7	31.5	60.8	109.6
Seneca	.3	6.7	21.1	9.7	37.8
Steuben	17.6	1.9	209.6	204.6	433.7
Suffolk	—	.9	6.8	159.6	167.3
Sullivan	2.0	6.6	40.4	373.2	422.2
Tioga	9.0	—	64.8	101.4	175.2
Tompkins	27.8	.5	36.2	80.2	144.7
Ulster	.1	9.4	42.7	330.8	383.0
Warren	.5	7.2	19.5	312.0	339.2
Washington	3.1	2.4	104.4	128.2	238.1
Wayne	.3	—	45.2	51.4	96.9
Westchester	2.0	—	4.0	76.7	82.7
Wyoming	1.0	.9	78.3	36.1	116.3
Yates	1.2	.3	32.5	40.8	74.8

Table 81.—*Area of commercial forest land in New York, by stand-size class and county, 1968*

(In thousands of acres)

County[1]	Sawtimber stands	Poletimber stands	Sapling-seedling stands	Nonstocked areas	Total
Albany	37.9	21.2	60.3	11.1	130.5
Allegany	93.1	60.9	203.2	51.6	408.8
Broome	45.6	48.8	110.8	35.6	240.8
Cattaraugus	88.2	63.7	247.9	67.2	467.0
Cayuga	37.5	20.9	60.0	12.4	130.8
Chautauqua	74.5	51.0	174.8	46.1	346.4
Chemung	35.9	37.3	52.4	13.0	138.6
Chenango	57.1	61.2	136.7	45.5	300.5
Clinton	117.8	86.0	209.0	37.4	450.2
Columbia	56.2	36.4	97.5	13.5	203.6
Cortland	43.9	40.2	58.5	15.9	158.5
Delaware	178.8	138.8	187.6	48.3	553.5
Dutchess	70.4	65.6	106.8	8.3	251.1
Erie	47.3	27.6	106.8	22.0	203.7
Essex	320.3	98.5	167.4	2.4	588.6
Franklin	191.9	130.7	280.9	51.3	654.8
Fulton	53.5	26.1	67.6	26.7	173.9
Genesee	14.7	8.9	54.6	14.0	92.2
Greene	70.3	59.5	85.1	6.1	221.0
Hamilton	210.1	56.1	98.8	1.8	366.8
Herkimer	116.9	54.7	151.7	71.9	395.2
Jefferson	53.3	41.5	172.2	47.4	314.4
Lewis	168.3	79.0	232.4	81.6	561.3
Livingston	24.6	14.1	55.9	12.6	107.2
Madison	41.5	24.8	103.0	22.1	191.4
Monroe	15.5	8.7	30.9	6.6	61.7
Montgomery	20.7	11.4	23.1	8.3	63.5

Continued

Table 81.—*Continued*

County[1]	Sawtimber stands	Poletimber stands	Sapling-seedling stands	Nonstocked areas	Total
Niagara	11.3	6.4	31.6	8.7	58.0
Oneida	75.6	34.9	155.7	91.4	357.6
Onondaga	32.7	20.1	88.9	20.0	161.7
Ontario	39.5	20.7	48.8	8.4	117.4
Orange	80.9	65.9	86.2	5.3	238.3
Orleans	8.7	5.0	28.4	7.6	49.7
Oswego	100.6	58.9	192.8	36.7	389.0
Otsego	109.8	74.6	111.4	36.3	332.1
Putnam	27.3	26.5	29.5	1.4	84.7
Rensselaer	95.1	44.0	93.8	10.9	243.8
St. Lawrence	282.9	202.7	500.3	99.7	1,085.6
Saratoga	126.4	53.8	122.5	12.3	315.0
Schenectady	11.8	5.2	24.1	4.6	45.7
Schoharie	61.1	49.1	87.0	7.8	205.0
Schuyler	28.2	26.4	43.1	11.9	109.6
Seneca	10.7	6.0	17.8	3.3	37.8
Steuben	95.5	68.4	217.3	52.5	433.7
Suffolk	19.2	25.9	109.3	12.9	167.3
Sullivan	157.0	121.6	135.9	7.7	422.2
Tioga	55.4	48.3	56.4	15.1	175.2
Tompkins	42.2	38.8	51.3	12.4	144.7
Ulster	123.7	104.6	145.5	9.2	383.0
Warren	166.0	55.5	115.6	2.1	339.2
Washington	79.9	41.6	101.7	14.9	238.1
Wayne	27.0	15.1	44.9	9.9	96.9
Westchester	20.2	19.9	39.2	3.4	82.7
Wyoming	30.6	17.4	56.9	11.4	116.3
Yates	21.2	11.7	35.4	6.5	74.8

[1] Estimates for counties in the Southwestern Region were revised and are slightly different from those in the preliminary statistical tables.

Table 82.—*Area of commercial forest land in New York, by forest type and county, 1968*

(In thousands of acres)

County[1]	White or red pine	Spruce-fir	Other soft-wood[2]	Oak-pine	Oak[3]	Elm-ash-red maple	Maple-beech-birch	Aspen-birch	Total
Albany	23.8	—	7.3	4.6	20.7	34.2	34.6	5.3	130.5
Allegany	16.1	—	23.4	—	38.3	71.0	230.6	29.4	408.8
Broome	20.2	—	20.0	—	18.1	53.1	109.4	20.0	240.8
Cattaraugus	21.3	—	29.5	—	39.5	77.1	262.1	37.5	467.0
Cayuga	3.6	—	7.5	—	9.7	52.9	51.9	5.2	130.8
Chautauqua	13.9	—	22.5	—	32.3	58.6	193.1	26.0	346.4
Chemung	12.6	—	10.1	—	11.8	29.0	65.5	9.6	138.6
Chenango	24.0	—	24.9	—	22.7	66.4	137.6	24.9	300.5
Clinton	31.6	54.8	14.8	—	6.7	105.7	171.9	64.7	450.2
Columbia	37.8	—	10.7	8.2	33.6	53.7	49.8	9.8	203.6
Cortland	15.9	—	11.3	—	12.5	33.0	75.8	10.0	158.5
Delaware	61.0	—	37.3	—	41.4	113.9	267.8	32.1	553.5
Dutchess	29.7	—	7.1	12.3	74.8	71.1	48.7	7.4	251.1
Erie	5.4	—	10.6	—	12.4	81.9	82.8	10.6	203.7
Essex	92.3	88.3	6.6	—	49.0	47.6	259.1	45.7	588.6
Franklin	39.9	73.9	24.0	—	8.4	151.0	267.9	89.7	654.8
Fulton	11.9	11.7	4.5	—	2.7	31.0	95.3	16.8	173.9
Genesee	1.8	—	4.5	—	3.8	37.8	38.9	5.4	92.2

Continued

Table 82.—*Continued*

County[1]	White or red pine	Spruce-fir	Other soft-wood[2]	Oak-pine	Oak[3]	Elm-ash-red maple	Maple-beech-birch	Aspen-birch	Total
Greene	27.3	—	7.4	11.3	63.6	56.9	47.1	7.4	221.0
Hamilton	56.1	56.7	4.9	—	23.9	29.7	165.8	29.7	366.8
Herkimer	24.6	24.1	10.1	—	6.2	64.1	226.0	40.1	395.2
Jefferson	19.4	40.3	9.5	—	4.5	69.1	109.8	61.8	314.4
Lewis	40.8	45.1	15.3	—	8.8	101.9	291.5	57.9	561.3
Livingston	2.5	—	6.1	—	6.4	43.0	43.8	5.4	107.2
Madison	5.0	—	9.4	—	11.0	77.8	77.3	10.9	191.4
Monroe	1.6	—	3.6	—	4.3	25.0	24.9	2.3	61.7
Montgomery	11.1	—	3.7	2.6	9.9	15.7	18.0	2.5	63.5
Niagara	1.2	—	2.8	—	3.0	25.3	23.6	2.1	58.0
Oneida	20.7	25.8	7.6	—	3.7	45.9	204.9	49.0	357.6
Onondaga	3.7	—	8.5	—	8.3	67.2	65.2	8.8	161.7
Ontario	4.3	—	5.8	—	11.0	45.6	46.8	3.9	117.4
Orange	26.9	—	6.0	11.0	75.4	66.6	49.2	3.2	238.3
Orleans	.9	—	2.7	—	2.5	20.5	20.6	2.5	49.7
Oswego	11.4	—	19.6	—	25.6	157.3	154.6	20.5	389.0
Otsego	36.2	—	24.4	—	21.8	64.3	162.1	23.3	332.1
Putnam	10.4	—	1.4	4.2	28.4	23.5	16.1	.7	84.7
Rensselaer	51.7	—	10.5	8.2	36.0	56.7	71.3	9.4	243.8

St. Lawrence	68.8	129.3	36.2	—	15.1	250.7	424.9	160.6	1,085.6
Saratoga	67.6	—	14.2	10.1	45.6	72.4	93.5	11.6	315.0
Schenectady	8.2	—	2.8	.9	6.7	12.6	12.7	1.8	45.7
Schoharie	24.2	—	7.7	10.0	55.8	53.9	44.3	9.1	205.0
Schuyler	10.5	—	8.2	—	8.5	23.1	51.5	7.8	109.6
Seneca	1.2	—	2.0	—	3.3	15.6	14.3	1.4	37.8
Steuben	17.9	—	28.3	—	43.7	72.3	239.1	32.4	433.7
Suffolk	18.1	—	7.7	7.7	38.1	54.1	28.4	13.2	167.3
Sullivan	50.9	—	11.4	20.8	131.0	105.8	93.8	8.5	422.2
Tioga	17.9	—	11.4	—	14.1	35.2	86.7	9.9	175.2
Tompkins	13.8	—	10.3	—	12.0	29.6	69.0	10.0	144.7
Ulster	47.9	—	14.7	19.5	106.8	96.4	86.4	11.3	383.0
Warren	57.5	49.6	3.4	—	29.5	32.5	136.5	30.2	339.2
Washington	47.1	—	11.5	8.7	36.7	59.0	64.6	10.5	238.1
Wayne	2.5	—	5.6	—	6.8	40.0	38.5	3.5	96.9
Westchester	7.6	—	1.6	2.5	25.6	27.3	17.4	.7	82.7
Wyoming	3.0	—	6.8	—	7.6	46.1	47.3	5.5	116.3
Yates	2.5	—	3.4	—	5.3	30.0	30.5	3.1	74.8

[1] Estimates for counties in the Southwestern Region were revised and are slightly different from those in the preliminary statistical tables.
[2] Includes plantations and may include spruce-fir if no acreage is shown for spruce-fir.
[3] Includes the oak-hickory type and may include oak-pine if no acreage is shown for oak-pine.

Table 83.—*Net cubic-foot volume on commercial forest land in New York, by tree-size class and county, 1968*

(In millions of cubic feet)

County	Sawtimber trees	Poletimber trees	Total growing stock
Albany	52.3	49.9	102.2
Allegany	170.8	181.7	352.5
Broome	76.7	98.4	175.1
Cattaraugus	164.2	187.6	351.8
Cayuga	57.1	56.7	113.8
Chautauqua	137.5	150.0	287.5
Chemung	59.9	72.4	132.3
Chenango	96.3	123.9	220.2
Clinton	149.6	171.4	321.0
Columbia	79.6	79.1	158.7
Cortland	70.5	80.0	150.5
Delaware	274.4	286.8	561.2
Dutchess	109.4	121.8	231.2
Erie	74.4	77.1	151.5
Essex	365.1	258.7	623.8
Franklin	235.2	263.1	498.3
Fulton	76.5	71.4	147.9
Genesee	24.6	26.5	51.1
Greene	104.7	114.9	219.6
Hamilton	229.9	155.0	384.9
Herkimer	177.5	161.6	339.1
Jefferson	73.8	88.2	162.0
Lewis	235.0	218.9	453.9
Livingston	38.6	39.8	78.4
Madison	66.4	70.2	136.6
Monroe	23.9	23.6	47.5
Montgomery	28.2	25.4	53.6

Continued

Table 83.—*Continued*

County	Sawtimber trees	Poletimber trees	Total growing stock
Niagara	18.0	18.0	36.0
Oneida	140.3	134.6	274.9
Onondaga	52.4	56.6	109.0
Ontario	59.6	55.9	115.5
Orange	119.6	125.5	245.1
Orleans	14.2	14.6	28.8
Oswego	156.1	162.1	318.2
Otsego	163.7	160.3	324.0
Putnam	42.9	47.0	89.9
Rensselaer	125.8	110.4	236.2
St. Lawrence	355.9	406.6	762.5
Saratoga	165.7	143.5	309.2
Schenectady	15.8	15.5	31.3
Schoharie	90.3	98.6	188.9
Schuyler	45.7	53.0	98.7
Seneca	16.5	16.0	32.5
Steuben	176.6	196.9	373.5
Suffolk	37.5	50.9	88.4
Sullivan	226.5	236.5	463.0
Tioga	87.9	95.9	183.8
Tompkins	67.9	77.3	145.2
Ulster	183.7	203.0	386.7
Warren	192.1	142.2	334.3
Washington	108.2	99.7	207.9
Wayne	41.0	40.7	81.7
Westchester	33.6	35.7	69.3
Wyoming	46.9	48.0	94.9
Yates	32.3	31.9	64.2

Table 84.—*Volume of growing stock on commercial forest land in New York, by stand-size class and county, 1968*

(In millions of cubic feet)

County[1]	Sawtimber stands	Poletimber stands	Other stands[2]	Total	Sampling error[3]
Albany	55.0	26.4	20.8	102.2	13
Allegany	167.6	101.9	83.0	352.5	9
Broome	66.7	66.4	42.0	175.1	13
Cattaraugus	155.0	102.2	94.6	351.8	9
Cayuga	63.2	28.8	21.8	113.8	15
Chautauqua	132.4	84.4	70.7	287.5	10
Chemung	56.6	52.8	22.9	132.3	14
Chenango	84.9	83.7	51.6	220.2	11
Clinton	146.2	97.3	77.5	321.0	8
Columbia	80.0	44.3	34.4	158.7	11
Cortland	68.9	56.9	24.7	150.5	13
Delaware	282.7	196.3	82.2	561.2	7
Dutchess	107.9	83.1	40.2	231.2	10
Erie	77.8	36.6	37.1	151.5	13
Essex	425.7	113.2	84.9	623.8	6
Franklin	241.6	151.2	105.5	498.3	6
Fulton	81.8	38.0	28.1	147.9	11
Genesee	23.8	11.5	15.8	51.1	23
Greene	109.2	78.3	32.1	219.6	10
Hamilton	275.4	63.1	46.4	384.9	6
Herkimer	190.5	85.5	63.1	339.1	8
Jefferson	65.8	46.5	49.7	162.0	13
Lewis	253.4	110.7	89.8	453.9	6
Livingston	41.2	19.2	18.0	78.4	18
Madison	67.7	32.4	36.5	136.6	14
Monroe	26.1	11.9	9.5	47.5	24
Montgomery	30.5	14.3	8.8	53.6	18

Continued

Table 84.—*Continued*

County[1]	Sawtimber stands	Poletimber stands	Other stands[2]	Total	Sampling error[3]
Niagara	18.8	8.7	8.5	36.0	25
Oneida	149.4	62.4	63.1	274.9	9
Onondaga	53.1	26.6	29.3	109.0	16
Ontario	66.9	27.9	20.7	115.5	15
Orange	123.5	85.0	36.6	245.1	10
Orleans	14.6	6.7	7.5	28.8	28
Oswego	164.3	78.2	75.7	318.2	9
Otsego	175.0	105.4	43.6	324.0	8
Putnam	42.2	33.5	14.2	89.9	16
Rensselaer	139.4	56.0	40.8	236.2	9
St. Lawrence	353.1	230.8	178.6	762.5	6
Saratoga	187.2	69.2	52.8	309.2	7
Schenectady	17.0	6.5	7.8	31.3	25
Schoharie	95.0	65.4	28.5	188.9	11
Schuyler	43.8	37.0	17.9	98.7	17
Seneca	17.9	8.0	6.6	32.5	26
Steuben	167.5	112.1	93.9	373.5	9
Suffolk	29.4	31.3	27.7	88.4	22
Sullivan	242.7	161.4	58.9	463.0	7
Tioga	89.5	69.7	24.6	183.8	11
Tompkins	66.9	55.2	23.1	145.2	14
Ulster	193.1	137.9	55.7	386.7	8
Warren	216.1	62.4	55.8	334.3	8
Washington	116.3	51.8	39.8	207.9	9
Wayne	45.4	20.9	15.4	81.7	19
Westchester	30.4	24.0	14.9	69.3	21
Wyoming	51.0	23.8	20.1	94.9	16
Yates	34.7	15.4	14.1	64.2	19

[1] Estimates for counties in the Southwestern Region were revised and are slightly different from those in the preliminary statistical tables.

[2] Volume is mostly in sapling-seedling stands (less than 2 percent of the volume is on nonstocked areas).

[3] Sampling error for total, expressed in percent.

Table 85.—*Volume of sawtimber on commercial forest land in New York, by stand-size class and county, 1968*

(In millions of board feet)[1]

County[2]	Sawtimber stands	Poletimber stands	Other stands[2]	Total	Sampling error[3]
Albany	137.5	28.0	35.6	201.1	18
Allegany	406.2	103.7	112.3	622.2	14
Broome	147.3	67.9	57.1	272.3	18
Cattaraugus	366.2	104.6	125.5	596.3	13
Cayuga	157.1	33.4	31.6	222.1	21
Chautauqua	318.8	85.7	95.6	500.1	16
Chemung	125.9	54.9	31.7	212.5	20
Chenango	189.5	84.7	67.9	342.1	16
Clinton	413.6	113.3	129.5	656.4	12
Columbia	201.7	46.7	58.2	306.6	15
Cortland	156.0	60.2	34.9	251.1	18
Delaware	662.1	205.9	115.0	983.0	9
Dutchess	291.4	94.4	67.0	452.8	15
Erie	193.8	43.0	53.4	290.2	32
Essex	1,236.9	146.3	167.9	1,551.1	8
Franklin	682.3	174.5	177.9	1,034.7	9
Fulton	237.4	47.5	58.3	343.2	14
Genesee	59.0	13.7	23.4	96.1	32
Greene	296.2	83.6	52.7	432.5	15
Hamilton	801.3	84.3	91.7	977.3	9
Herkimer	557.6	106.3	132.7	796.6	10
Jefferson	185.4	55.8	80.8	322.0	18
Lewis	731.0	140.3	180.0	1,051.3	8
Livingston	101.9	22.5	26.0	150.4	26
Madison	168.6	38.4	52.4	259.4	20
Monroe	65.5	13.8	13.7	93.0	40
Montgomery	76.5	15.5	16.3	108.3	24

Continued

Table 85.—*Continued*

County[2]	Sawtimber stands	Poletimber stands	Other stands	Total	Sampling error[3]
Niagara	46.8	10.2	13.2	70.2	34
Oneida	433.6	79.6	111.7	624.9	11
Onondaga	130.6	31.4	42.3	204.3	23
Ontario	170.5	32.4	30.2	233.1	22
Orange	330.6	99.1	64.4	494.1	15
Orleans	36.3	8.0	11.1	55.4	41
Oswego	408.6	91.5	108.3	608.4	13
Otsego	418.8	110.3	59.9	589.0	12
Putnam	115.1	39.4	23.2	177.7	23
Rensselaer	345.0	61.0	76.0	482.0	11
St. Lawrence	1,000.0	269.0	294.7	1,563.7	8
Saratoga	461.5	75.1	98.1	634.7	10
Schenectady	41.6	6.5	12.7	60.8	33
Schoharie	256.6	68.6	48.2	373.4	16
Schuyler	99.6	38.4	24.7	162.7	23
Seneca	45.9	9.5	9.2	64.6	39
Steuben	400.0	113.7	127.7	641.4	13
Suffolk	80.5	31.0	46.1	157.6	31
Sullivan	653.1	180.2	100.6	933.9	10
Tioga	204.0	74.9	34.4	313.3	16
Tompkins	154.4	56.2	31.3	241.9	20
Ulster	525.0	143.0	91.3	759.3	11
Warren	623.3	80.1	110.3	813.7	11
Washington	289.2	55.0	71.1	415.3	12
Wayne	112.5	24.1	22.7	159.3	28
Westchester	82.3	30.8	27.2	140.3	30
Wyoming	126.1	27.6	28.8	182.5	24
Yates	87.4	17.9	20.9	126.2	27

[1] International ¼-inch rule.
[2] Estimates for counties in the Southwestern Region were revised and are slightly different from those in the preliminary statistical table.
[3] Sampling error for total, expressed in percent.

Table 86.—*Volume of growing stock on commercial forest land in New York, by forest type and county, 1968*

(In millions of cubic feet)

County[1]	White or red pine	Spruce-fir	Other soft-wood[2]	Oak-pine	Oak[3]	Elm-ash-red maple	Maple-beech-birch	Aspen-birch	Total
Albany	27.1	—	7.7	4.8	15.7	19.2	25.3	2.4	102.2
Allegany	19.6	—	17.1	—	55.2	67.2	186.2	7.2	352.5
Broome	20.7	—	18.2	—	22.8	41.9	66.0	5.5	175.1
Cattaraugus	25.5	—	18.7	—	54.7	58.3	186.2	8.4	351.8
Cayuga	5.1	—	8.7	—	13.4	39.8	45.2	1.6	113.8
Chautauqua	17.5	—	15.0	—	45.8	52.2	150.2	6.8	287.5
Chemung	15.6	—	10.5	—	16.8	28.6	57.3	3.5	132.3
Chenango	25.5	—	22.8	—	28.6	52.1	84.0	7.2	220.2
Clinton	33.3	44.2	16.3	—	5.6	70.8	128.7	22.1	321.0
Columbia	42.9	—	11.2	8.5	25.4	30.1	36.1	4.5	158.7
Cortland	19.8	—	11.7	—	17.3	31.8	66.7	3.2	150.5
Delaware	83.6	—	41.5	—	57.6	114.0	253.7	10.8	561.2
Dutchess	35.5	—	8.8	11.9	82.5	51.7	40.6	.2	231.2
Erie	6.9	—	9.1	—	15.5	56.0	61.1	2.9	151.5
Essex	111.3	104.4	10.3	—	43.1	39.3	263.7	51.7	623.8
Franklin	40.6	59.6	28.9	—	6.8	107.9	222.1	32.4	498.3
Fulton	17.5	13.1	7.5	—	3.8	33.2	66.2	6.6	147.9
Genesee	2.1	—	2.8	—	4.4	19.6	20.8	1.4	51.1
Greene	35.3	—	10.0	11.8	75.3	44.6	42.4	0.2	219.6
Hamilton	67.0	65.1	7.6	—	21.9	21.7	166.4	35.2	384.9
Herkimer	39.1	28.8	17.6	—	9.1	73.4	155.9	15.2	339.1
Jefferson	17.8	27.1	8.9	—	3.0	34.6	56.8	13.8	162.0
Lewis	54.8	51.0	20.0	—	9.7	99.5	195.5	23.4	453.9
Livingston	3.4	—	5.7	—	8.4	28.0	31.4	1.5	78.4
Madison	6.2	—	7.3	—	13.1	51.8	55.3	2.9	136.6

Monroe	2.4	—	3.4	—	5.9	16.8	18.3	.7	47.5
Montgomery	13.7	—	4.2	2.9	8.1	9.5	13.9	1.3	53.6
Niagara	1.7	—	2.4	—	4.0	13.4	13.9	.6	36.0
Oneida	33.6	37.8	10.6	—	4.4	55.6	112.7	20.2	274.9
Onondaga	4.1	—	6.7	—	9.6	41.5	44.9	2.2	109.0
Ontario	7.4	—	6.8	—	15.8	39.9	44.0	1.6	115.5
Orange	36.1	—	8.4	11.9	88.7	54.1	45.8	.1	245.1
Orleans	1.3	—	2.0	—	3.3	10.4	11.1	.7	28.8
Oswego	13.8	—	19.1	—	31.7	118.2	129.9	5.5	318.2
Otsego	52.4	—	23.6	—	29.5	63.7	149.0	5.8	324.0
Putnam	14.3	—	2.0	4.8	33.6	19.7	15.5	—	89.9
Rensselaer	73.0	—	13.7	10.5	33.8	39.5	60.3	5.4	236.2
St. Lawrence	71.6	101.3	40.5	—	11.9	167.9	317.8	51.5	762.5
Saratoga	96.7	—	18.6	13.2	43.4	51.1	79.3	6.9	309.2
Schenectady	8.2	—	2.6	.8	4.5	6.2	8.3	.7	31.3
Schoharie	29.0	—	9.6	9.7	64.3	39.2	36.9	.2	188.9
Schuyler	12.9	—	8.2	—	11.7	21.5	41.9	2.5	98.7
Seneca	2.1	—	1.8	—	4.5	11.8	11.8	.5	32.5
Steuben	24.2	—	20.6	—	61.5	64.9	192.6	9.7	373.5
Suffolk	12.5	—	5.5	4.3	29.8	22.5	13.6	.2	88.4
Sullivan	72.7	—	16.9	24.2	164.1	91.7	93.2	.2	463.0
Tioga	24.7	—	12.7	—	20.0	36.5	86.7	3.2	183.8
Tompkins	18.8	—	11.1	—	17.3	30.3	63.7	4.0	145.2
Ulster	63.1	—	19.9	20.8	126.7	77.0	78.9	.3	386.7
Warren	64.2	51.9	5.3	—	23.9	24.0	135.1	29.9	334.3
Washington	59.9	—	13.5	10.1	31.0	37.0	50.9	5.5	207.9
Wayne	3.5	—	6.6	—	9.4	28.6	32.5	1.1	81.7
Westchester	8.3	—	1.8	2.2	25.8	18.0	13.2	—	69.3
Wyoming	3.9	—	7.1	—	10.1	33.6	38.6	1.6	94.9
Yates	3.5	—	3.3	—	6.9	23.7	25.8	1.0	64.2

[1] Estimates for counties in the Southwestern Region were revised and are slightly different from those in the preliminary statistical tables.
[2] Includes plantations and may include spruce-fir if no volume is shown for spruce-fir.
[3] Includes the oak-hickory type and may include oak-pine if no volume is shown for oak-pine.

Table 87.—*Volume of sawtimber on commercial forest land in New York, by forest type and county, 1968*

(In millions of board feet)[1]

County[2]	White or red pine	Spruce-fir	Other soft-wood[3]	Oak-pine	Oak[4]	Elm-ash-red maple	Maple-beech-birch	Aspen-birch	Total
Albany	69.3	—	10.6	10.6	33.8	28.9	46.2	1.7	201.1
Allegany	35.2	—	9.4	—	101.1	126.0	340.4	10.1	622.2
Broome	40.6	—	25.0	—	34.5	53.6	113.6	5.0	272.3
Cattaraugus	44.4	—	11.0	—	107.7	84.7	337.1	11.4	596.3
Cayuga	13.1	—	10.2	—	28.6	75.3	93.1	1.8	222.1
Chautauqua	31.3	—	8.3	—	86.3	90.9	273.2	10.1	500.1
Chemung	29.8	—	16.7	—	24.0	37.9	100.7	3.4	212.5
Chenango	51.4	—	31.8	—	42.7	65.8	143.8	6.6	342.1
Clinton	97.5	68.5	20.3	—	12.6	133.8	297.7	26.0	656.4
Columbia	107.2	—	15.0	18.4	53.6	44.3	65.0	3.1	306.6
Cortland	40.6	—	19.3	—	24.8	42.5	121.0	2.9	251.1
Delaware	191.1	—	74.2	—	82.4	151.1	473.9	10.3	983.0
Dutchess	91.2	—	7.7	21.7	169.4	85.9	76.9	—	452.8
Erie	16.7	—	10.8	—	31.9	102.5	124.8	3.5	290.2
Essex	303.1	243.7	41.2	—	84.6	55.0	704.4	119.1	1,551.1
Franklin	117.2	92.4	34.9	—	16.1	207.8	526.1	40.2	1,034.7
Fulton	39.5	24.8	9.3	—	6.1	71.9	179.1	12.5	343.2
Genesee	4.9	—	3.3	—	8.7	35.6	41.9	1.7	96.1
Greene	91.4	—	8.7	21.8	154.6	74.9	81.1	—	432.5
Hamilton	182.3	152.4	30.5	—	46.6	30.9	449.2	85.4	977.3
Herkimer	90.5	56.0	22.1	—	14.5	159.0	425.2	29.3	796.6
Jefferson	50.1	40.4	8.9	—	7.5	65.5	130.5	19.1	322.0
Lewis	123.2	102.3	24.8	—	15.8	215.4	523.6	46.2	1,051.3
Livingston	8.3	—	6.6	—	17.7	52.2	63.9	1.7	150.4
Madison	14.7	—	8.7	—	26.3	93.9	112.2	3.6	259.4
Monroe	6.2	—	4.0	—	12.5	31.8	37.7	.8	93.0

Montgomery	35.7	—	5.9	6.6	17.9	14.7	26.6	.9	**108.3**
Niagara	4.2	—	2.8	—	8.4	25.5	28.6	.7	70.2
Oneida	78.4	73.3	13.1	—	7.7	118.3	296.7	37.4	624.9
Onondaga	9.1	—	7.7	—	19.3	75.8	89.5	2.9	204.3
Ontario	19.5	—	8.8	—	33.7	75.7	93.8	1.6	233.1
Orange	93.4	—	7.3	21.9	192.5	91.1	87.9	—	494.1
Orleans	3.4	—	2.4	—	6.9	19.6	22.3	.8	55.4
Oswego	33.3	—	22.4	—	64.8	216.1	264.8	7.0	608.4
Otsego	127.8	—	44.6	—	42.0	82.9	285.7	6.0	589.0
Putnam	36.4	—	1.7	8.5	69.9	32.3	28.9	—	177.7
Rensselaer	175.5	—	19.4	24.2	75.4	61.4	122.1	4.0	482.0
St. Lawrence	210.8	155.7	49.6	—	26.4	318.6	739.2	63.4	1,563.7
Saratoga	232.4	—	26.7	30.2	97.2	79.8	163.4	5.0	634.7
Schenectady	21.8	—	3.5	1.8	9.4	9.2	14.6	.5	60.8
Schoharie	76.2	—	8.5	18.1	132.1	66.8	71.7	—	373.4
Schuyler	27.0	—	13.1	—	17.1	28.2	74.9	2.4	162.7
Seneca	5.2	—	2.2	—	9.4	22.2	25.1	.5	64.6
Steuben	44.0	—	12.1	—	118.0	104.8	348.1	14.4	641.4
Suffolk	30.6	—	4.6	7.5	54.3	36.0	24.6	—	157.6
Sullivan	189.9	—	15.0	44.6	349.1	155.4	179.9	—	933.9
Tioga	50.9	—	22.7	—	28.0	49.5	159.1	3.1	313.3
Tompkins	40.5	—	18.9	—	24.4	39.9	114.3	3.9	241.9
Ulster	161.8	—	17.4	37.8	264.2	128.1	150.0	—	759.3
Warren	171.6	116.9	21.0	—	46.2	32.7	356.6	68.7	813.7
Washington	148.2	—	18.8	22.7	67.7	56.4	97.6	3.9	415.3
Wayne	8.7	—	7.6	—	20.3	54.5	66.9	1.3	159.3
Westchester	21.5	—	1.6	4.1	57.5	30.3	25.3	—	140.3
Wyoming	9.5	—	8.3	—	21.6	62.4	78.8	1.9	182.5
Yates	8.6	—	4.1	—	14.3	43.7	54.3	1.2	126.2

[1] International ¼-inch rule.
[2] Estimates for counties in the Southwestern Region were revised and are slightly different from those in the preliminary statistical tables.
[3] Includes plantations and may include spruce-fir if no volume is shown for spruce-fir.
[4] Includes the oak-hickory type and may include oak-pine if no volume is shown for oak-pine.

Table 88.—*Volume of growing stock on commercial forest land in New York, by species and county, 1968*

(In millions of cubic feet)

County	White pine	Red pine	Spruce	Fir	Hemlock	Other softwoods	Total softwoods	Select white oaks	Select red oaks	Other oaks	Hickory	Yellow birch
Albany	20.0	3.1	0.9	—	12.0	1.1	37.1	2.8	10.0	3.3	2.7	1.3
Allegany	6.6	12.3	—	—	31.5	2.3	52.7	12.7	35.1	3.7	6.9	3.4
Broome	10.7	8.1	—	—	18.1	2.8	39.7	1.9	12.8	3.5	2.6	2.4
Cattaraugus	7.4	12.6	—	—	29.7	2.7	52.4	13.1	35.3	4.2	8.5	4.2
Cayuga	5.4	3.6	—	—	5.4	1.5	15.9	1.8	4.6	.5	6.7	1.9
Chautauqua	5.7	10.5	—	—	24.8	1.9	42.9	10.7	29.2	3.2	6.0	3.0
Chemung	6.8	4.3	—	—	13.5	1.2	25.8	1.3	10.2	2.6	2.0	1.8
Chenango	13.5	10.3	—	—	22.2	3.4	49.4	2.3	16.1	4.2	3.3	2.9
Clinton	16.2	10.5	25.4	13.6	19.3	12.7	97.7	—	6.5	—	—	15.4
Columbia	31.2	4.7	1.2	—	17.6	1.3	56.0	4.9	16.6	5.5	4.0	1.6
Cortland	7.9	4.6	—	—	15.8	1.5	29.8	1.4	10.9	3.1	2.0	2.0
Delaware	34.3	15.1	—	—	60.3	4.3	114.0	4.8	38.5	10.7	7.1	6.9
Dutchess	20.1	2.5	1.3	—	19.9	3.0	46.8	14.8	31.4	32.4	9.1	3.5
Erie	6.0	3.2	—	—	7.8	2.3	19.3	3.2	7.4	.4	8.5	2.7
Essex	85.8	4.9	79.2	35.8	57.4	6.9	270.0	—	31.2	—	—	49.5
Franklin	21.8	16.9	36.1	19.6	26.6	18.6	139.6	—	8.4	—	—	25.2
Fulton	11.3	4.4	13.6	3.1	18.0	2.8	53.2	—	3.3	—	—	10.8
Genesee	1.8	.9	—	—	2.6	.9	6.2	1.5	3.3	.1	2.7	.9

Continued

Table 88.—*Continued*

County	Sweet birch	Sugar maple	Soft maple	Beech	Ash	Bass-wood	Aspen	Black cherry	Elm	Other hard-woods	Total hard-woods	Total all species
Albany	1.2	11.9	8.2	2.8	4.8	1.9	3.6	1.5	4.9	4.2	65.1	102.2
Allegany	3.7	87.9	47.6	29.8	20.2	12.8	11.6	11.6	9.7	3.1	299.8	352.5
Broome	3.3	32.1	35.1	8.7	10.7	6.1	7.1	3.5	4.1	1.5	135.4	175.1
Cattaraugus	4.7	76.8	45.3	31.6	21.1	14.2	13.8	12.5	10.5	3.6	299.4	351.8
Cayuga	.4	22.2	16.0	5.4	10.1	9.6	2.4	4.2	9.0	3.1	97.9	113.8
Chautauqua	3.2	68.1	38.0	24.8	16.8	11.0	10.2	9.7	7.9	2.8	244.6	287.5
Chemung	2.5	27.5	25.6	8.5	7.9	5.7	4.9	2.3	2.2	1.5	106.5	132.3
Chenango	4.0	40.8	44.4	11.4	13.3	7.8	9.0	4.3	5.0	2.0	170.8	220.2
Clinton	—	58.7	47.4	24.4	8.8	8.6	19.5	9.5	14.3	10.2	223.3	321.0
Columbia	1.9	17.5	12.2	4.0	7.8	3.0	6.4	2.4	8.1	6.8	102.7	158.7
Cortland	2.9	31.9	28.0	10.7	9.1	6.5	4.9	2.9	2.7	1.7	120.7	150.5
Delaware	10.1	122.2	100.2	44.3	32.8	24.2	17.6	11.1	10.7	6.0	447.2	561.2
Dutchess	7.3	16.5	32.9	5.9	11.9	3.4	3.1	5.4	2.0	4.8	184.4	231.2
Erie	.7	28.2	22.2	6.9	13.5	12.1	4.1	5.9	14.2	2.2	132.2	151.5
Essex	—	89.7	35.2	55.3	13.5	6.9	23.7	3.6	3.0	42.2	353.8	623.8
Franklin	—	100.4	74.8	41.7	14.4	14.6	28.7	13.9	22.2	14.4	358.7	498.3
Fulton	—	21.8	19.7	12.7	5.2	2.0	4.9	6.6	5.0	2.7	94.7	147.9
Genesee	.2	9.0	7.6	2.2	4.8	4.0	1.7	2.0	3.4	1.5	44.9	51.1

Continued

Table 88.—*Continued*

County	White pine	Red pine	Spruce	Fir	Hem-lock	Other soft-woods	Total soft-woods	Select white oaks	Select red oaks	Other oaks	Hick-ory	Yellow birch
Greene	18.8	5.6	1.3	—	19.3	2.7	47.7	12.4	29.2	27.8	8.0	4.0
Hamilton	48.9	2.8	50.7	20.6	37.5	4.4	164.9	—	17.4	—	—	33.0
Herkimer	26.1	9.9	31.0	6.6	41.0	5.9	120.5	—	7.8	—	—	25.1
Jefferson	10.2	6.5	14.9	6.7	9.6	9.2	57.1	—	5.4	—	—	6.9
Lewis	35.3	12.3	45.4	11.1	55.5	10.0	169.6	—	9.2	—	—	33.7
Livingston	3.4	2.3	—	—	3.8	1.1	10.6	1.9	4.5	.3	4.5	1.3
Madison	5.0	2.4	—	—	7.1	2.3	16.8	2.3	5.3	.4	7.5	2.5
Monroe	2.4	1.3	—	—	2.3	.6	6.6	.8	2.2	.8	2.9	.8
Montgomery	10.6	1.8	.6	—	6.6	.4	20.0	1.5	5.4	1.8	1.4	.7
Niagara	1.5	.9	—	—	1.8	.5	4.7	.7	1.5	.1	2.0	.6
Oneida	22.1	5.6	29.6	7.8	33.8	9.1	108.0	—	5.1	—	—	20.0
Onondaga	3.9	2.6	—	—	5.3	1.8	13.6	1.7	3.4	.4	5.0	2.1
Ontario	5.6	2.0	—	—	6.3	1.6	15.5	1.8	6.5	.5	7.0	1.7
Orange	18.8	3.5	1.2	—	22.5	2.8	48.8	15.9	32.1	34.1	9.5	4.3
Orleans	1.4	.8	—	—	1.4	.3	3.9	.6	1.2	.1	1.7	.4
Oswego	12.2	7.1	—	—	16.1	5.0	40.4	2.5	5.9	1.0	17.6	5.8
Otsego	21.5	8.2	—	—	35.1	2.3	67.1	2.5	20.8	5.8	3.7	3.8
Putnam	7.3	.6	.3	—	8.0	1.1	17.3	6.0	12.5	12.7	3.6	1.3
Rensselaer	45.4	7.6	2.2	—	30.9	2.4	88.5	5.3	21.0	7.7	6.3	3.8

Continued

Table 88.—*Continued*

County	Sweet birch	Sugar maple	Soft maple	Beech	Ash	Bass-wood	Aspen	Black cherry	Elm	Other hard-woods	Total hard-woods	Total all species
Greene	6.1	18.1	30.7	6.8	11.0	3.6	2.9	5.5	1.7	4.1	171.9	219.6
Hamilton	—	56.6	21.8	35.6	8.2	4.0	14.6	2.3	1.9	24.6	220.0	384.9
Herkimer	—	51.6	43.9	30.3	11.6	4.3	10.8	14.7	11.3	7.2	218.6	339.1
Jefferson	—	25.5	23.1	10.4	4.7	3.8	9.6	4.3	8.4	2.8	104.9	162.0
Lewis	—	63.9	58.9	37.8	15.7	6.1	16.3	19.8	14.2	8.7	284.3	453.9
Livingston	.3	14.8	11.0	3.6	7.1	6.4	2.0	3.1	4.8	2.2	67.8	78.4
Madison	.6	24.7	20.4	6.1	12.2	10.9	3.9	5.5	13.6	3.9	119.8	136.6
Monroe	.2	9.1	6.6	2.2	4.3	3.8	1.0	1.8	3.8	1.2	40.9	47.5
Montgomery	.7	6.4	4.2	1.5	2.4	1.0	1.7	.8	1.7	2.4	33.6	53.6
Niagara	.2	6.7	5.1	1.6	3.3	3.1	1.0	1.4	3.1	.9	31.3	36.0
Oneida	—	36.3	33.6	22.3	8.7	3.5	10.4	11.2	7.4	8.4	166.9	274.9
Onondaga	.4	19.6	16.4	4.8	10.0	9.0	3.1	4.5	10.9	3.2	95.4	109.0
Ontario	.6	23.1	15.9	5.7	9.6	9.2	2.5	3.9	8.7	3.3	100.0	115.5
Orange	8.4	18.1	34.3	7.5	12.5	3.7	3.4	5.9	1.9	4.7	196.3	245.1
Orleans	.1	5.2	4.0	1.3	2.7	2.2	.9	1.2	2.6	.7	24.9	28.8
Oswego	1.4	59.6	47.3	14.6	28.1	26.2	8.2	12.3	36.0	11.3	277.8	318.2
Otsego	5.6	72.1	55.9	28.0	18.5	13.9	9.5	6.7	6.8	3.3	256.9	324.0
Putnam	2.8	6.0	13.8	2.2	4.5	1.3	1.2	2.1	.9	1.7	72.6	89.9
Rensselaer	2.8	31.0	19.9	7.4	10.8	4.7	7.1	3.3	8.1	8.5	147.7	236.2

Continued

Table 88.—*Continued*

County	White pine	Red pine	Spruce	Fir	Hem-lock	Other soft-woods	Total soft-woods	Select white oaks	Select red oaks	Other oaks	Hick-ory	Yellow birch
St. Lawrence	35.8	25.2	58.6	31.1	43.7	30.9	225.3	—	5.9	—	—	37.0
Saratoga	60.7	10.3	3.2	—	40.7	3.3	118.2	6.5	26.8	9.5	8.2	5.3
Schenectady	6.3	.9	.2	—	3.7	.4	11.5	.6	2.6	.9	.8	.4
Schoharie	15.7	5.8	1.3	—	16.3	2.3	41.4	10.5	24.4	23.8	6.9	3.6
Schuyler	5.7	3.3	—	—	10.3	1.1	20.4	1.0	7.2	1.9	1.4	1.3
Seneca	1.5	.5	—	—	1.8	.5	4.3	.6	1.8	.1	2.1	.5
Steuben	7.9	14.2	—	—	31.0	2.7	55.8	14.3	39.1	4.6	8.3	4.0
Suffolk	10.1	1.1	.8	—	5.1	1.6	18.7	5.2	11.9	13.2	4.0	1.0
Sullivan	35.2	11.4	2.5	—	43.0	5.1	97.2	27.7	60.4	59.7	16.9	8.8
Tioga	8.8	4.7	—	—	19.2	1.3	34.0	1.6	13.4	3.9	2.4	2.3
Tompkins	8.5	4.3	—	—	14.9	1.1	28.8	1.3	10.9	2.5	2.2	1.8
Ulster	34.2	11.9	2.5	—	33.4	4.5	86.5	21.1	50.2	48.3	13.4	7.0
Warren	51.3	3.7	40.4	19.4	29.8	3.5	148.1	—	17.2	—	—	24.5
Washington	41.2	6.6	1.9	—	25.3	2.0	77.0	5.4	19.8	6.7	5.3	2.9
Wayne	3.8	2.9	—	—	3.8	1.0	11.5	1.3	3.1	.4	4.8	1.4
Westchester	4.3	.3	.2	—	5.6	.6	11.0	5.6	8.5	11.6	2.9	.9
Wyoming	4.2	3.0	—	—	4.5	1.3	13.0	1.5	3.4	.4	5.4	1.6
Yates	2.5	.9	—	—	3.5	1.0	7.9	1.6	4.4	.1	3.5	1.1

Continued

Table 88.—*Continued*

County	Sweet birch	Sugar maple	Soft maple	Beech	Ash	Bass-wood	Aspen	Black cherry	Elm	Other hard-woods	Total hard-woods	Total all species
St. Lawrence	—	144.4	113.6	60.1	21.8	20.7	45.0	22.4	34.3	32.0	537.2	762.5
Saratoga	3.7	40.4	26.3	10.0	13.4	5.7	8.9	4.5	10.6	11.2	191.0	309.2
Schenectady	.4	3.8	2.6	1.0	1.4	.6	1.1	.5	1.9	1.2	19.8	31.3
Schoharie	5.6	16.3	25.0	6.3	9.8	3.2	2.5	4.9	1.2	3.5	147.5	188.9
Schuyler	1.8	20.1	18.9	6.5	5.9	4.0	3.5	1.9	1.9	1.0	78.3	98.7
Seneca	.2	6.1	4.5	1.5	2.7	2.5	.8	1.3	2.7	.8	28.2	32.5
Steuben	4.4	83.8	48.3	32.7	22.0	14.7	14.5	12.6	10.4	4.0	317.7	373.5
Suffolk	2.6	6.5	10.6	1.2	5.3	1.0	1.6	2.1	.8	2.7	69.7	88.4
Sullivan	14.5	37.6	64.6	15.8	23.1	7.8	5.9	11.7	3.3	8.0	365.8	463.0
Tioga	3.6	41.1	33.4	14.9	10.9	8.6	5.4	3.4	2.8	2.1	149.8	183.8
Tompkins	2.5	30.8	27.5	10.2	8.5	6.2	5.4	2.5	2.5	1.6	116.4	145.2
Ulster	10.6	33.0	52.8	12.4	20.1	6.5	4.9	9.6	2.8	7.5	300.2	386.7
Warren	—	45.8	18.9	27.7	7.1	4.1	13.9	2.0	2.2	22.8	186.2	334.3
Washington	2.5	25.1	16.8	6.1	9.6	3.8	7.2	3.1	8.3	8.3	130.9	207.9
Wayne	.3	16.0	11.5	3.9	7.3	7.1	1.7	3.0	6.4	2.0	70.2	81.7
Westchester	3.6	4.0	9.0	1.7	4.7	.8	1.1	1.6	.6	1.7	58.3	69.3
Wyoming	.4	18.3	13.6	4.5	8.5	7.9	2.2	3.6	8.1	2.5	81.9	94.9
Yates	.3	12.5	9.5	3.1	5.6	5.3	1.6	2.2	3.6	1.9	56.3	64.2

Table 89.—*Volume of sawtimber on commercial forest land in New York, by species and county, 1968*

(In millions of board feet)[1]

County	White pine	Red pine	Spruce	Fir	Hemlock	Other softwoods	Total softwoods	Select white oaks	Select red oaks	Other oaks	Hickory	Yellow birch
Albany	55.4	2.0	1.8	—	27.9	2.5	89.6	8.9	25.8	8.0	3.8	2.7
Allegany	15.7	5.9	—	—	60.4	.5	82.5	28.0	82.1	4.9	11.0	4.0
Broome	19.3	11.9	—	—	36.8	3.3	71.3	4.2	26.2	8.1	4.2	2.1
Cattaraugus	17.5	6.9	—	—	62.3	.8	87.5	29.1	84.1	6.0	13.9	4.7
Cayuga	9.1	5.9	—	—	11.3	1.2	27.5	5.8	15.3	2.1	9.9	1.8
Chautauqua	13.5	5.3	—	—	49.1	.5	68.4	23.7	68.6	4.3	9.7	3.5
Chemung	12.7	6.9	—	—	28.4	1.6	49.6	3.2	21.0	5.0	3.0	1.8
Chenango	25.2	15.5	—	—	46.1	3.8	90.6	5.2	32.7	9.3	5.1	2.6
Clinton	41.0	19.5	40.2	16.9	59.8	19.6	197.0	—	17.3	—	—	40.4
Columbia	86.2	2.8	2.8	—	40.8	3.2	135.8	15.6	42.0	13.2	5.4	3.3
Cortland	16.5	7.1	—	—	34.1	1.7	59.4	3.3	23.4	6.3	3.2	2.1
Delaware	81.5	23.6	—	—	137.7	5.4	248.2	11.2	84.8	20.5	11.3	7.6
Dutchess	60.1	1.6	1.7	—	46.4	4.6	114.4	36.4	78.0	62.8	15.3	3.4
Erie	12.2	4.6	—	—	15.7	1.7	34.2	9.0	24.1	1.7	11.7	2.7
Essex	283.3	16.6	176.3	46.3	162.9	14.1	699.5	—	56.2	—	—	153.7
Franklin	53.0	27.8	58.8	23.8	81.5	29.6	274.5	—	20.7	—	—	70.0
Fulton	28.3	5.6	29.5	3.1	43.4	2.1	112.0	—	8.2	—	—	29.7
Genesee	4.2	1.0	—	—	5.1	.6	10.9	4.3	10.5	.4	3.7	.9

Continued

Table 89.—*Continued*

County	Sweet birch	Sugar maple	Soft maple	Beech	Ash	Bass-wood	Aspen	Black cherry	Elm	Other hard-woods	Total hard-woods	Total all species
Albany	1.1	21.4	8.0	4.7	6.8	4.2	3.0	1.2	7.9	4.0	111.5	201.1
Allegany	2.0	163.2	81.3	51.7	29.3	27.7	6.1	20.9	20.9	6.6	539.7	622.2
Broome	2.2	50.7	37.3	14.1	16.1	14.8	4.4	5.7	8.0	2.9	201.0	272.3
Cattaraugus	2.4	139.7	60.7	53.1	28.6	29.1	6.9	19.6	23.6	7.3	508.8	596.3
Cayuga	.3	41.1	27.8	11.2	17.0	22.8	2.1	9.3	21.2	6.9	194.6	222.1
Chautauqua	1.8	124.9	60.0	42.7	23.8	23.2	5.3	16.8	17.6	5.8	431.7	500.1
Chemung	1.5	42.3	27.6	15.6	13.6	13.7	3.3	3.9	4.6	2.8	162.9	212.5
Chenango	2.6	64.3	45.5	18.9	20.4	18.6	5.7	6.9	9.9	3.8	251.5	342.1
Clinton	—	113.4	71.1	68.2	13.7	22.0	32.1	27.7	39.6	13.9	459.4	656.4
Columbia	1.8	30.8	10.1	6.4	10.4	7.0	4.6	1.5	12.8	5.9	170.8	306.6
Cortland	1.6	51.0	32.4	20.5	15.3	15.6	3.0	5.3	5.8	2.9	191.7	251.1
Delaware	5.4	204.2	119.8	87.6	57.0	57.1	10.2	20.6	26.0	11.5	734.8	983.0
Dutchess	9.2	26.7	42.3	10.0	16.0	7.0	4.4	12.0	4.0	10.9	338.4	452.8
Erie	.6	53.7	38.4	14.9	21.2	27.6	3.4	12.1	32.2	2.7	256.0	290.2
Essex	—	252.4	54.8	143.0	27.4	15.3	53.4	9.4	5.9	80.1	851.6	1,551.1
Franklin	—	205.9	114.7	117.6	24.1	34.7	51.5	40.0	61.0	20.0	760.2	1,034.7
Fulton	—	49.4	37.7	40.3	11.7	5.2	9.2	17.6	16.4	5.8	231.2	343.2
Genesee	.2	17.5	12.7	4.9	7.4	9.3	1.2	4.1	4.9	3.2	85.2	96.1

Continued

Table 89.—*Continued*

County	White pine	Red pine	Spruce	Fir	Hemlock	Other softwoods	Total softwoods	Select white oaks	Select red oaks	Other oaks	Hickory	Yellow birch
Greene	56.8	2.1	1.8	—	46.8	4.2	111.7	29.9	75.4	52.3	14.1	4.9
Hamilton	162.1	9.2	114.3	29.6	109.8	10.0	435.0	—	34.5	—	—	105.6
Herkimer	65.2	12.9	68.2	6.5	99.9	4.6	257.3	—	19.4	—	—	69.4
Jefferson	25.0	9.5	23.0	8.3	28.0	14.4	108.2	—	13.4	—	—	18.6
Lewis	92.3	16.8	102.2	10.8	135.5	8.6	366.2	—	23.5	—	—	95.4
Livingston	6.3	3.5	—	—	7.6	.8	18.2	5.7	14.5	1.2	6.7	1.3
Madison	10.9	3.0	—	—	14.2	1.7	29.8	6.5	17.0	1.3	10.1	2.5
Monroe	4.3	2.1	—	—	4.9	.4	11.7	2.5	7.3	.7	3.9	.7
Montgomery	30.1	1.2	1.1	—	15.4	1.2	49.0	5.0	14.2	4.2	2.1	1.5
Niagara	3.0	1.4	—	—	3.6	.3	8.3	2.1	4.9	.5	2.8	.6
Oneida	60.5	8.6	66.6	7.4	84.7	7.2	235.0	—	12.8	—	—	58.4
Onondaga	7.3	3.6	—	—	10.3	1.4	22.6	5.3	10.6	1.4	9.2	2.0
Ontario	12.3	3.4	—	—	13.7	1.2	30.6	5.8	22.3	1.3	7.7	1.8
Orange	58.3	1.5	2.0	—	52.6	4.6	119.0	40.2	85.4	69.0	16.1	4.7
Orleans	2.8	1.1	—	—	2.8	.2	6.9	1.7	4.0	.4	2.3	.4
Oswego	23.6	10.2	—	—	32.6	4.0	70.4	7.3	19.1	3.9	25.3	5.7
Otsego	55.5	12.9	—	—	83.6	2.6	154.6	5.8	47.3	11.0	6.0	4.3
Putnam	22.2	.5	.4	—	19.1	1.5	43.7	15.3	31.6	24.9	6.0	1.2
Rensselaer	128.5	5.0	4.0	—	71.4	5.8	214.7	16.9	57.2	1.2	10.1	7.8

Continued

Table 89.—*Continued*

County	Sweet birch	Sugar maple	Soft maple	Beech	Ash	Bass-wood	Aspen	Black cherry	Elm	Other hard-woods	Total hard-woods	Total all species
Greene	7.7	30.4	40.6	11.7	15.6	7.9	4.5	12.4	3.2	10.2	320.8	432.5
Hamilton	—	157.5	34.1	92.3	16.5	9.6	35.4	6.4	4.2	46.2	542.3	977.3
Herkimer	—	117.6	84.5	97.0	26.4	11.7	21.5	40.1	37.4	14.3	539.3	796.6
Jefferson	—	50.1	35.3	28.8	6.1	10.1	15.0	11.6	23.2	1.6	213.8	322.0
Lewis	—	143.7	111.2	115.7	34.9	15.1	30.0	51.4	45.8	18.4	685.1	1,051.3
Livingston	.3	27.6	19.0	7.5	11.8	14.9	1.6	6.6	8.8	4.7	132.2	150.4
Madison	.6	47.7	34.9	13.3	18.4	24.5	3.2	10.9	30.3	8.4	229.6	259.4
Monroe	.2	16.9	11.6	4.8	7.3	8.9	1.0	3.9	8.8	2.8	81.3	93.0
Montgomery	.6	11.6	4.5	2.5	3.5	2.1	1.4	.7	3.0	2.4	59.3	108.3
Niagara	.1	12.5	8.7	3.5	5.8	7.5	.8	2.9	7.0	2.2	61.9	70.2
Oneida	—	79.6	60.9	66.2	17.6	8.4	19.9	29.9	22.4	13.8	389.9	624.9
Onondaga	.4	37.0	27.1	9.7	15.8	21.0	2.3	9.2	24.1	6.6	181.7	204.3
Ontario	.5	44.3	30.0	13.3	15.4	20.6	2.4	8.3	21.4	7.4	202.5	233.1
Orange	10.8	31.3	45.1	12.7	17.7	8.2	5.6	13.6	3.6	11.1	375.1	494.1
Orleans	.1	9.8	6.7	2.8	4.7	5.3	.6	2.5	5.5	1.7	48.5	55.4
Oswego	1.3	113.4	81.4	30.8	43.1	60.1	6.9	25.3	88.2	26.2	538.0	608.4
Otsego	2.7	124.5	68.6	56.7	32.7	32.5	5.1	12.9	17.6	6.7	434.4	589.0
Putnam	3.5	9.7	17.8	3.6	5.6	2.7	1.3	5.0	1.6	4.2	134.0	177.7
Rensselaer	2.3	56.6	23.7	13.0	17.4	9.7	7.5	3.5	14.2	9.2	267.3	482.0

Continued

Table 89.—*Continued*

County	White pine	Red pine	Spruce	Fir	Hem-lock	Other soft-woods	Total soft-woods	Select white oaks	Select red oaks	Other oaks	Hick-ory	Yellow birch
St. Lawrence	90.4	43.7	93.8	38.9	135.6	47.9	450.3	—	15.0	—	—	98.3
Saratoga	171.3	7.6	5.5	—	94.3	9.0	287.7	20.8	73.1	22.6	13.4	11.0
Schenectady	16.8	.7	.5	—	8.4	1.2	27.6	1.9	6.7	2.2	1.2	1.0
Schoharie	47.0	1.9	1.8	—	39.6	3.8	94.1	25.1	63.7	44.9	12.2	4.7
Schuyler	11.8	5.2	—	—	22.3	1.4	40.7	2.2	15.1	3.8	2.2	1.3
Seneca	3.4	.9	—	—	3.7	.3	8.3	1.9	6.2	.4	2.2	.5
Steuben	18.7	7.8	—	—	63.8	.6	90.9	31.8	92.0	6.1	13.3	4.6
Suffolk	27.1	.9	.8	—	11.1	2.3	42.2	11.1	23.0	23.5	6.7	.5
Sullivan	109.1	3.6	4.0	—	103.9	8.8	229.4	69.4	164.5	117.0	29.4	11.2
Tioga	19.6	7.7	—	—	42.1	1.5	70.9	4.0	28.9	7.2	3.6	2.6
Tompkins	18.3	7.2	—	—	33.3	1.5	60.3	3.2	22.5	4.5	3.1	1.9
Ulster	103.4	4.2	3.1	—	81.6	7.4	199.7	49.8	131.1	88.2	23.9	9.1
Warren	163.3	11.7	86.0	27.0	84.9	7.0	379.9	—	29.2	—	—	74.6
Washington	115.3	4.5	3.7	—	58.7	5.2	187.4	17.0	51.9	16.1	8.1	6.0
Wayne	6.1	4.7	—	—	7.9	.8	19.5	4.2	10.2	1.6	7.4	1.3
Westchester	13.0	.2	.3	—	12.5	1.1	27.1	14.8	22.1	24.7	4.8	.8
Wyoming	7.0	4.6	—	—	9.3	1.1	22.0	4.5	11.2	1.6	8.4	1.6
Yates	5.4	1.4	—	—	7.4	.8	15.0	4.6	14.3	.6	4.4	1.2

Continued

Table 89.—*Continued*

County	Sweet birch	Sugar maple	Soft maple	Beech	Ash	Bass-wood	Aspen	Black cherry	Elm	Other hard-woods	Total hard-woods	Total all species
St. Lawrence	—	283.6	172.1	168.8	33.6	52.2	75.8	65.1	94.2	54.7	1,113.4	1,563.7
Saratoga	3.1	74.7	32.2	17.1	21.3	12.1	9.4	4.9	18.6	12.7	347.0	634.7
Schenectady	.3	6.8	2.8	1.5	2.0	1.3	1.0	.5	2.8	1.2	33.2	60.8
Schoharie	7.2	28.1	33.7	11.1	14.8	7.1	4.7	10.5	2.4	9.1	279.3	373.4
Schuyler	1.1	32.3	20.9	12.0	9.8	9.6	2.3	3.3	4.2	1.9	122.0	162.7
Seneca	.1	11.6	8.2	3.5	4.5	5.6	.7	2.6	6.2	2.1	56.3	64.6
Steuben	2.4	151.6	70.5	55.9	30.7	30.8	7.7	21.4	23.2	8.5	550.5	641.4
Suffolk	3.3	8.6	13.0	2.5	8.2	2.1	2.6	2.5	1.8	6.0	115.4	157.6
Sullivan	18.6	66.1	87.0	27.1	33.1	17.4	10.1	27.5	6.1	20.0	704.5	933.9
Tioga	1.8	65.5	39.1	29.5	19.3	20.7	3.2	6.4	6.5	4.1	242.4	313.3
Tompkins	1.5	49.0	29.6	19.2	15.0	14.7	3.7	4.5	5.8	3.4	181.6	241.9
Ulster	13.4	55.9	69.9	21.6	29.0	13.9	8.2	21.7	5.5	18.4	559.6	759.3
Warren	—	127.8	28.0	71.2	13.3	9.9	28.7	5.2	4.4	41.5	433.8	813.7
Washington	2.2	45.4	17.6	10.0	13.9	8.7	6.1	2.7	13.8	8.4	227.9	415.3
Wayne	.3	29.3	19.8	7.8	12.7	17.1	1.4	6.7	15.0	5.0	139.8	159.3
Westchester	4.9	7.3	11.6	3.4	7.1	1.7	1.6	3.0	1.4	4.0	113.2	140.3
Wyoming	.3	34.0	23.2	9.0	14.2	18.5	1.8	7.9	18.6	5.7	160.5	182.5
Yates	.3	24.2	17.2	6.9	8.4	12.1	1.4	4.4	7.1	4.1	111.2	126.2

[1] International ¼-inch rule.

Table 90.—*Selected industries that use wood, and their U.S. Bureau of the Census SIC Codes*

Manufacturing industry (parts of codes 19 to 39)	SIC code
Timber-based industries:	
Lumber and wood products	24
Furniture and fixtures	25
Paper and allied products	26
Primary-manufacturing industries:	
Sawmills and planing mills	242
Veneer and plywood plants	2432
Pulpmills	261
Paper mills, except building paper	262
Paperboard mills	263
Secondary-manufacturing industries:	
(Paper and allied products)	26
Paper and board products	264
Paperboard container and boxes	265
Building paper and building board mills	266
(Parts of textile mill products industry) 2221, 2241, 2254, 2256, 2259, 2262, 2271, 2281, 2282, 2284, 2294, and 2296	22
(Parts of apparel and related products industry) 2311, 2321, 2323, 2327, 2331, 2335, 2337, 2341, 2361, 2363, 2369, 2384, 2391, 2392, and 2399	23
(Parts of chemical and allied products industry)	28
Fibers, plastic materials	2821
Fibers, cellulosic man-made (rayon)	2823
(Furniture and fixtures)	25
Wood furniture, not upholstered	2511
Wood office furniture	2521
Wood partitions and fixtures	2541
All other, excluding metal household furniture (2514), metal office furniture (2522), and metal partitions and fixtures (2542)	
(Millwork and related products)	243
Millwork plants	2431
Prefabricated wood products	2433
Wooden containers	244
Miscellaneous wood products	249
Other than manufacturing industries	
Contract construction	
General contractors, buildings	15
General contractors, except buildings	16
Special trade contractors	17
Transportation and marketing	
Transportation and other public utilities (Parts of industry codes 41 to 49)	
Wholesale trade	50
Retail trade (Parts of industry codes 52 to 59)	

Sources: County Business Patterns, 1967, New York *(17)*. The Economic Importance of Timber in the United States *(6)*.

Table 91.—*Employment in New York State, by selected industries, 1967*

INDUSTRY [1]	Employees	Employees attributed to timber	
	No.	*Percent*	*No.*
TIMBER-SUPPLY			
Forest management	3,000	—	3,000
Harvesting [2]	8,000	—	8,000
Total, timber-supply industries	11,000	100.0	11,000
PRIMARY-MANUFACTURING			
(Lumber and wood products, 24) [3]			
Sawmills and planing mills, 242	3,414	94.7	3,233
Veneer and plywood plants, 2432	706	91.1	643
Total, parts of industry 24	4,120	—	3,876
(Paper and allied products), 26 [3]			
Pulpmills, 261	957	—	813
Paper mills, except bldg. paper, 262	12,342	—	10,491
Paperboard mills, 263	2,453	—	2,085
Total, parts of industry 26	15,752	85.0	13,389
Total, primary-manufacturing industries	19,872	(86.9)	17,265
SECONDARY-MANUFACTURING			
(Paper and allied products, 26) [3]			
Paper and paperboard products, 264	24,177	—	16,682
Paperboard containers and boxes, 265	26,236	—	18,103
Bldg. paper and bldg. board mills, 266	835	—	576
Total, parts of industry 26	51,248	69.0	35,361
Parts of textile mill products, 22 (12 of 31 industries included) [4]	18,589	—	3,104
Parts of apparel and related products, 23 (15 of 40 industries included) [4]	213,596	—	35,671
Parts of chemical and allied products, 28 (2 of 4 industries included) [4]	6,076	—	1,015
Total, parts of industries, 22, 23, 28	238,261	16.7	39,790
Parts of furniture and fixtures, 25			
Total (less metal furniture and metal fixtures, codes 2514, 2522 and 2542)	23,464	36.6	8,588

Continued

Table 91.—*Continued*

INDUSTRY [1]	Employees	Employees attributed to timber	
	No.	*Percent*	*No.*
SECONDARY-MANUFACTURING			
(Millwork and related products, 243) [3]			
Millwork plants, 2431	3,234	—	2,506
Prefabricated wood products, 2433	482	—	374
Total, parts of industry 243	3,716	77.5	2,880
Wooden containers, 244	1,131	83.3	942
Miscellaneous wood products, 249	6,333	(70.0)	4,433
Total, parts of industry 24	11,180	—	8,255
Total, secondary-manufacturing industries	324,153	—	91,994
CONSTRUCTION INDUSTRIES [5]	438,286	20.0	87,657
TRANSPORTATION AND MARKETING OF TIMBER PRODUCTS [6]			
Total, parts of transportation industries	143,618	(13.6)	19,500
Total, parts of wholesale trade	52,947	(67.6)	35,800
Total, parts of retail trade	365,909	(15.1)	55,300
Total, transportation and marketing industries	562,474	(19.7)	110,600
RECAPITULATION OF ABOVE INDUSTRIES			
Timber-supply industries	11,000	100.0	11,000
Lumber and wood products, 24	15,300	79.3	12,131
Furniture and fixtures, parts of 25	23,464	36.6	8,588
Paper and allied products, 26	67,000	72.8	48,750
Textile, apparel, and chemical products (Parts of industries 22, 23, 28)	238,261	16.7	39,790
Construction, transportation, and marketing (15, 16, 17 and parts of 50, 52, 53, 56, 57, 59)	1,000,760	19.8	198,257
Total, all industries	1,355,785	23.5	318,516

Note: Percent attributable to timber derived from Hair's data for 1958 *(6)*.

[1] The SIC codes used by the Bureau of the Census are used to identify each industry.

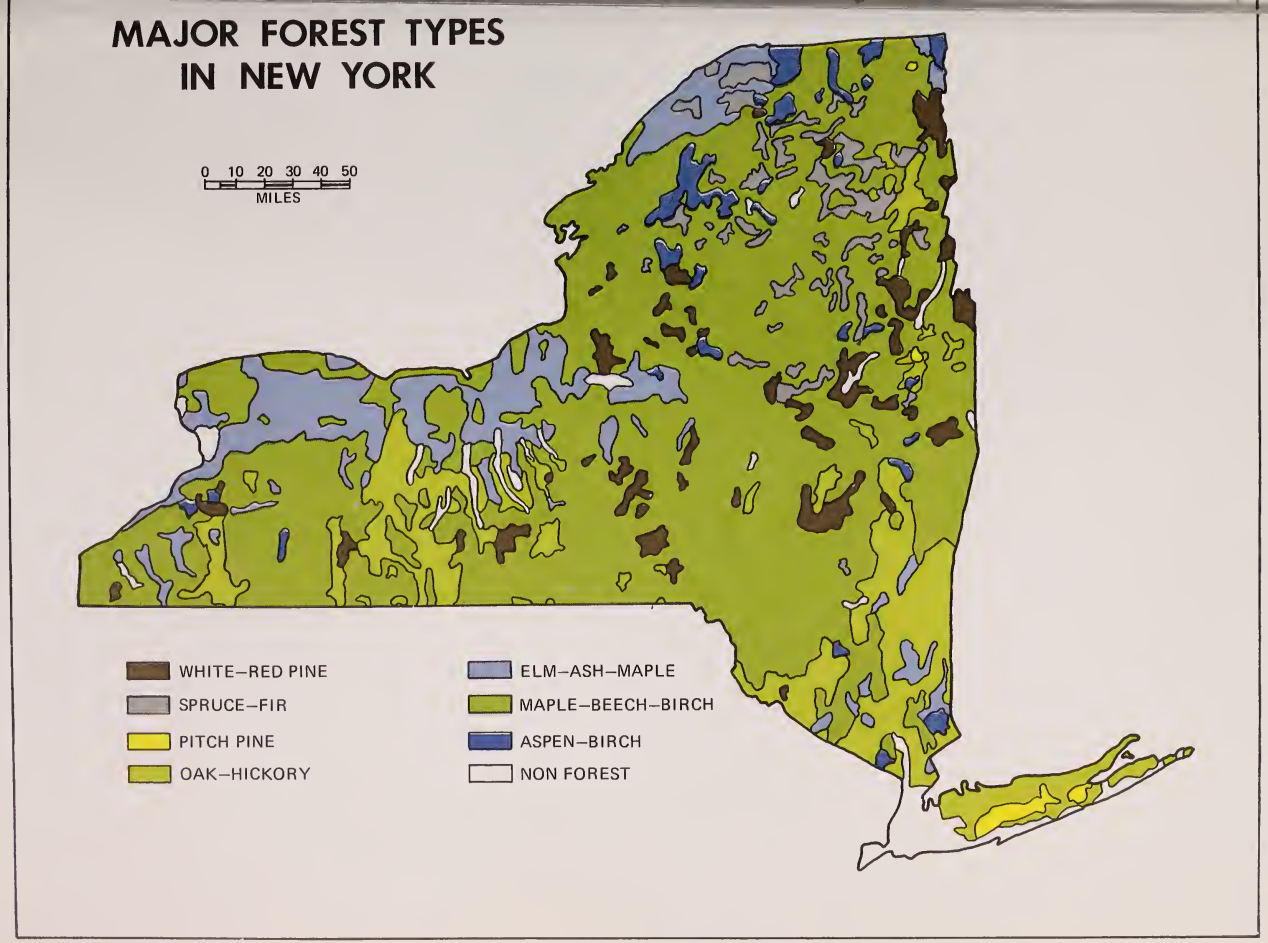
[2] This estimate includes the 592 employees in the "Logging camps and logging contractors" industry, 241, reported in County Business Patterns for New York *(17)*.

[3] The number of employees reported in County Business Patterns *(17)* for industries 24 and 26 were adjusted to equal the number reported in the New York Statistical Yearbook *(12)*.

[4] See the corresponding codes given in table 90.

[5] The contract-construction industries, 15, 16, 17, make up only one-half of construction industry. Force account employment and self employment make up the other half (6).

[6] The transportation industries included are: 42, 44, and 47. The marketing industries included are: 5096, 5097, 5098, 52, 53, 56, 57, and 59.


MAJOR FOREST TYPES
IN NEW YORK
0 10 20 30 40 50
MILES
WHITE–RED PINE
SPRUCE–FIR
PITCH PINE
OAK–HICKORY
ELM–ASH–MAPLE
MAPLE–BEECH–BIRCH
ASPEN–BIRCH
NON FOREST

THE FOREST SERVICE of the U. S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.